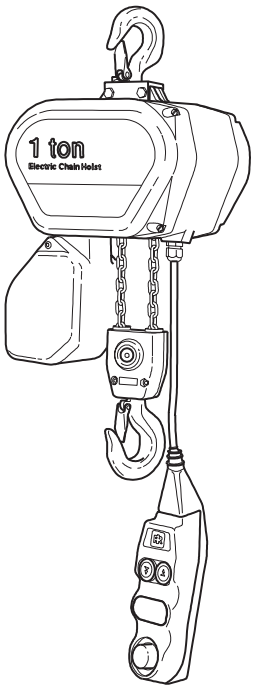
PARTS, INSTALLATION AND MAINTENANCE MANUAL
for
QUANTUM 1/8 TO 5 TON ELECTRIC CHAIN HOISTS



(Dwg. MHP0856)

Unless otherwise noted, tons in this manual are metric tons (2,200 lb)

READ THIS MANUAL BEFORE USING THESE PRODUCTS. This manual contains important safety, installation, operation and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.

⚠WARNING

Do not use this hoist for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this hoist in accordance with American National Standards Institute Safety Code (ASME B30.16) and any other applicable safety codes and regulations.

Refer all communications to the nearest Ingersoll-Rand Material Handling Office or Distributor.

Form MHD56105
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INGERSOLL-RAND
MATERIAL HANDLING

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SAFETY INFORMATION

This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you should read this manual before operating the hoist.

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in an injury. The following signal words are used to identify the level of potential hazard.

⚠ DANGER Danger is used to indicate the presence of a hazard which ***will*** cause ***severe*** injury, death, or substantial property damage if the warning is ignored.

⚠ WARNING Warning is used to indicate the presence of a hazard which ***can*** cause ***severe*** injury, death, or substantial property damage if the warning is ignored.

⚠ CAUTION Caution is used to indicate the presence of a hazard which ***will*** or ***can*** cause injury or property damage if the warning is ignored.

NOTICE Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard-related.

Safety Summary

⚠ WARNING

• Do not use this hoist or attached equipment for lifting, supporting, or transporting people or lifting or supporting loads over people.
• The supporting structures and load-attaching devices used in conjunction with these hoists must provide a liberal safety factor. This is the customer's responsibility. If in doubt, consult a registered structural engineer.
• Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.

NOTICE

• Lifting equipment is subject to different regulations in each country. These regulations may not be specified in this manual.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near suspended loads or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

Ingersoll-Rand Material Handling hoists are manufactured in accordance with the latest ASME B30.16 standards.

The Occupational Safety and Health Act of 1970 generally places the burden of compliance with the user, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, associated with the final installation. It is the owner's and user's responsibility to determine the suitability of a product for any particular use. It is recommended that all applicable industry, trade association, federal, state and local regulations be checked. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. Refer to ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This manual has been produced by **Ingersoll-Rand** to provide dealers, mechanics, operators and company personnel with the information required to install, operate, maintain and repair the products described herein.

It is extremely important that mechanics and operators be familiar with the servicing procedures of these products, or like or similar products, and are physically capable of conducting the procedures. These personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of mechanic's common hand tools as well as special **Ingersoll-Rand** or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

Ingersoll-Rand cannot know of, or provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

SAFE OPERATING INSTRUCTIONS

The following warnings and operating instructions have been adapted in part from American National (Safety) Standard ASME B30.16 and are intended to avoid unsafe operating practices which might lead to injury or property damage.

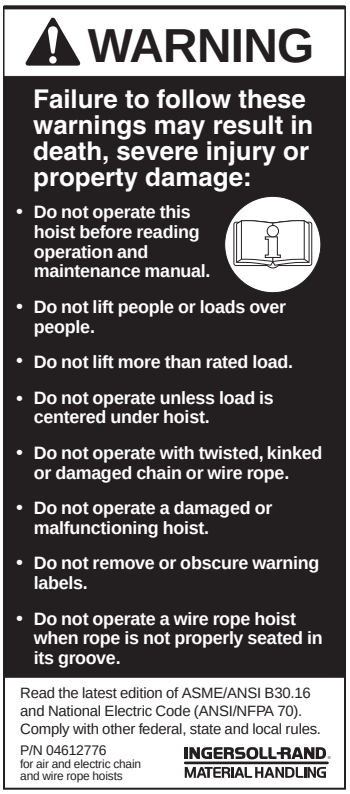
Ingersoll-Rand recognizes that most companies who use hoists have a safety program in force at their facility. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of unsafe practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow personnel trained in safety and operation of this hoist to operate this product.
2. Only operate a hoist if you are physically fit to do so.
3. When a **"DO NOT OPERATE"** sign is placed on the hoist, or controls, do not operate the hoist until the sign has been removed by designated personnel.
4. Do not use hoist if hook latch has been sprung or broken.
5. Check that the hook latches are engaged before using.
6. Before each shift, check the hoist for wear and damage. Never use a hoist that inspection indicates is worn or damaged.
7. Never lift a load greater than the rated capacity of the hoist. Refer to capacity labels attached to hoist.
8. Do not use more than one hook on a single load.
9. Never place your hand inside the throat area of a hook.
10. Never use the load chain as a sling.
11. Only operate a hoist when the chain is centered over the hook. Do not "side pull" or "yard".
12. Never operate a hoist with twisted, kinked or damaged chain.
13. Do not force hook into place by hammering.
14. Be certain the load is properly seated in the saddle of the hook.
15. Do not support the load on the tip of the hook.
16. Never run the chain over a sharp edge.
17. Pay attention to the load at all times when operating the hoist.
18. Make sure everyone is clear of the load path. Do not lift a load over people.
19. Never use the hoist for lifting or lowering people, and never allow anyone to stand on a suspended load.
20. Do not swing a suspended load.
21. Do not leave load suspended when hoist is not in use.
22. Never weld or flame cut a load suspended by the hoist.
23. Do not operate hoist if chain jumping, excessive noise, jamming, overloading, or binding occurs.
24. Shut off electrical supply before performing any maintenance.
25. Avoid collision or bumping of hoist.
26. After use, or when in a non-operational mode, the chain hoist should be secured against unauthorized and unwarranted use.

WARNING LABELS AND TAG

Each hoist is shipped from the factory with the warning labels and tag shown. If the labels or tag are not attached to your hoist, order new labels or tag and install them. Refer to the parts list for the part numbers. Labels and tag are shown smaller than actual size.



Description of Hoist Operation

Refer to Dwg. MHP0762 on page 5.

Quantum electric chain hoists are available in capacities ranging from 1/8 to 5 metric tons (275 to 11,000 lb) and are designed to efficiently raise and lower loads. **Quantum** hoists are available in three body sizes which utilize five different load chain sizes. They can be installed as stationary or mobile (trolley mounted) units. **Quantum** electric chain hoists are manufactured in accordance with the latest technical developments along with known technical safety regulations and specifications, and are tested for safety by the manufacturer. All three phase **Quantum** hoists carry an H4 class hoist duty service rating and are UL and C-UL listed.

Quantum electric chain hoists are driven by cylindrical, squirrel cage motors (1). The electric chain hoist is fitted with an AC multiple disc brake (2). The brake magnet is opened and closed by means of the disc system's torque arm. In a de-energized mode the compression spring produces the braking torque. The asbestos-free slip clutch (3) is found in the first gearing stage and operates as an overload safety device. It is factory adjusted to limit hoists from lifting loads in excess of 150% of rated hoist capacity. The two-stage (Q25/50/100) or three-stage (Q200/300/500) enclosed spur gearing (4) is designed for hoist lifting operations. The gears are hardened, self-adjusting and continuously lubricated. The helical gearing design of the first gearing stage ensures running noise is kept to a minimum. The output from the gearing section powers the five pocket chain wheel (5).

The hoist is fitted with a 42 volt low voltage control system (6) which is electrically and mechanically interlocked. An optional 110V control system is also available.

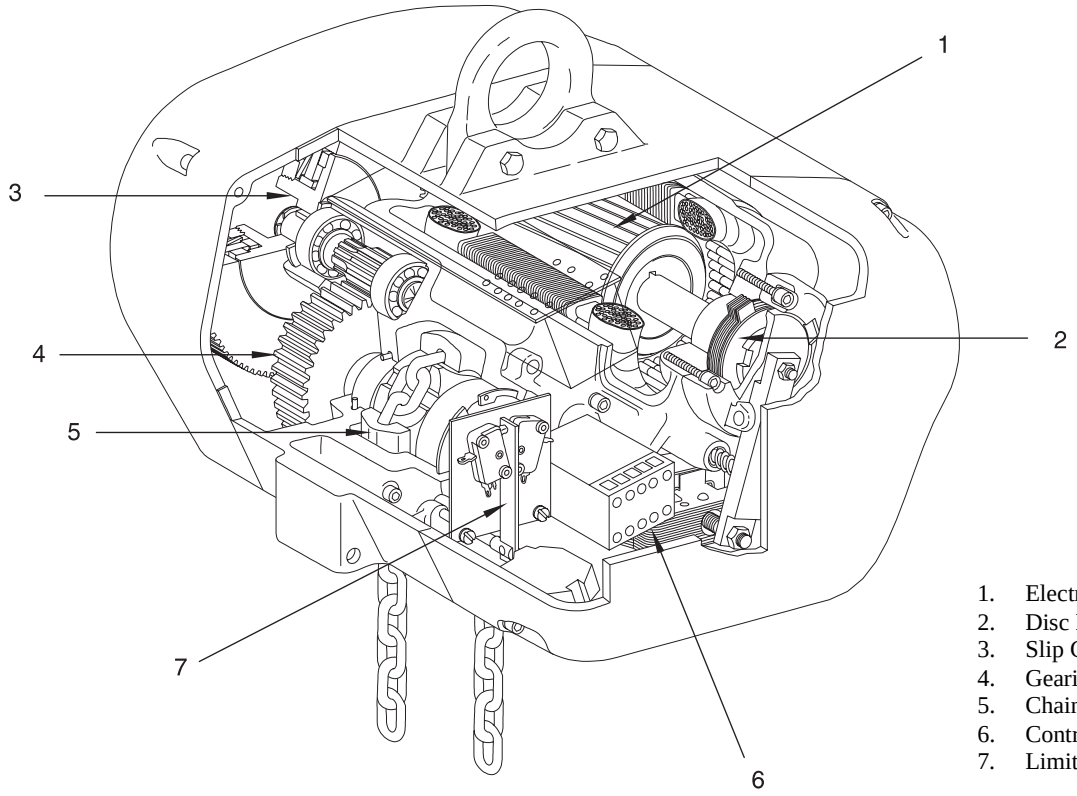
Limit switches (7) are employed for the determination of the highest and lowest hook positions.

Quantum electric chain hoists are equipped with a waterproof NEMA 4R rated control pendant for the following functions:

Up / down
Single or dual speed
Emergency stop (red button)

Additionally, the following push button switches can be incorporated.

Left / right (trolley operation)

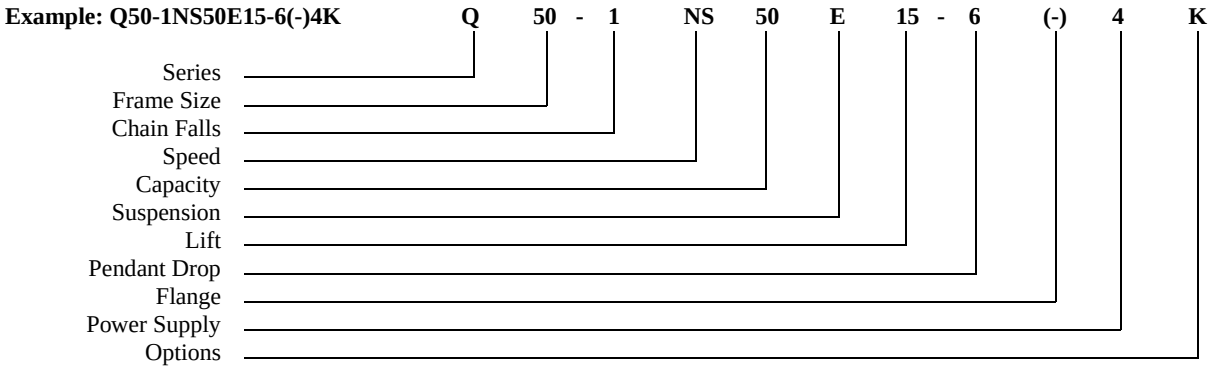


1. Electric Motor
2. Disc Brake
3. Slip Clutch
4. Gearing
5. Chain Wheel
6. Control System
7. Limit Switch

(Dwg. MHP0762)

Model Code Explanation

Example: Q50-1NS50E15-6(-)4K



Series	Frame Size
QUANTUM (Q)	25 = 275 - 1,100 lb (125 - 500 kg) **50 = 550 - 2,200 lb (250 - 1,000 kg)** 100 = 1,100 - 4,400 lb (500 - 2,000 kg) 200 = 6,600 lb (3,000 kg) 300 = 4,400 - 11,000 lb (2,000 - 5,000 kg)
Chain Falls	**Speed**
1 = Single fall 2 = Double fall	**NS = Normal Speed** ND = Normal/Dual Speed HS = High Speed (1) HD = High/Dual Speed (1)
Capacity	**Suspension**
25 = 275 lb (125 kg) (2) 25 = 550 lb (250 kg) **50 = 1,100 lb (500 kg)** 100 = 2,200 lb (1,000 kg) 200 = 4,400 lb (2,000 kg) 300 = 6,600 lb (3,000 kg) 400 = 8,800 lb (4,000 kg) 500 = 11,000 lb (5,000 kg)	**E = Eye Bolt (No Trolley)** H = Top Hook P = Plain Trolley M1 = Motorized Trolley Normal Speed M2 = Motorized Trolley Normal/Dual Speed M3 = Motorized Trolley High Speed (3) M4 = Motorized Trolley High/Dual Speed (3)
Lift (Length in feet (ft)	**Pendant Drop (Length in feet (ft))**
XX = Specify	**6, 11, 16 = Standard** XX = Specify
Flange (4)	**Power Supply (volts/phase/Hz)**
A = Standard Refer to Trolley Parts, Operation and Maint. Manual B = Refer to chart in Trolley Parts, Operation and Maint. Manual C = Refer to chart in Trolley Parts, Operation and Maint. Manual D = Refer to chart in Trolley Parts, Operation and Maint. Manual **(-) = Eyebolt (No Trolley)**	1 = 115/1/60 (5) 2 = 230/1/60 (5) 3 = 230/3/60 **4 = 460/3/60** 5 = 575/3/60 6 = 380/3/50
Options	
B = Trolley Brake **K = 110 Volt Control** C = Chain Container P = Pendant with vertically aligned buttons (Not covered in this manual) F = F "xx," specify power cord length (Std. = 15 ft. on E, H and P suspension, Std. = 3 ft. on M suspension) H = Handi-Pendant (1/8 and 1/4 ton only)	

Notes:

(1) = Available as three (3) phase models on Q50-1HS25, Q50-1HD25, Q100-1HS50 and Q100-1HD50 only

(2) = Single phase models only

(3) = Not available on Q300-2

(4) = For specifications refer to individual charts for plain and motorized trolleys

(5) = Available in 125 kg, 250 kg and 500 kg capacities only

For special applications, please contact the factory or your local **Ingersoll-Rand** distributor.

Table 1: Hoist Performance

Hoist Capacity		Base Hoist Model	Suspensions Available	Load Chain Falls	Hoist Lifting Speed			
					Single		Dual	
metric tons	lb				fpm	m/min	fpm	m/min
1/8	275	Q25-1NS	E, H, P	1	32	9.8	---	
1/4	550	Q25-2NS		2	16	4.9		
		Q50-1NS		1	36	11.0		
		Q25-1NS	E, H, P, M1, M2, M3, M4	1	32	9.8	---	
		Q25-1ND		1	---		32/6	9.8/1.8
		Q50-1HS		1	64	19.5	---	
		Q50-1HD		1	---		50/8	15.2/2.4
1/2	1100	Q50-2NS	E, H, P	2	18	5.5	---	
		Q25-2NS	E, H, P, M1, M2, M3, M4	2	16	4.9	---	
		Q25-2ND		2	---		16/3	4.9/0.9
		Q50-1NS		1	36	11	---	
		Q50-1ND		1	---		36/6	11.0/1.8
		Q100-1HS		1	64	19.5	---	
		Q100-1HD		1	---		64/16	19.5/5.0
1	2200	Q50-2NS		2	18	5.5	---	
		Q50-2ND		2	---		18/3	5.5/0.9
		Q100-1NS		1	32	9.8	---	
		Q100-1ND		1	---		32/8	9.8/2.4
2	4400	Q100-2NS		2	16	4.9	---	
		Q100-2ND		2	---		16/4	4.9/1.2
		Q300-1NS		1	32	9.8	---	
		Q300-1ND		1	---		32/8	9.8/2.4
3	6600	Q200-2NS		2	16	4.9	---	
		Q200-2ND		2	---		16/4	4.9/1.2
4	8800	Q300-2NS	E, H, P	2	16	4.9	---	
		Q300-2ND	E, H, P, M1, M2	2	---		16/4	4.9/1.2
5	11,000	Q500-2NS		2	12.5	3.8	---	---
		Q500-2ND			---	---	12.5/3	3.8/0.9

E = Eyebolt (no trolley)

H = Top Hook

P = Plain Trolley

M1 = Motorized Trolley (Rated Speed 48 fpm (14.6 mpm))

M2 = Motorized Trolley (Rated Speed 48/6 fpm (14.6/1.8 mpm))

M3 = Motorized Trolley (Rated Speed 96 fpm (29.3 mpm))

M4 = Motorized Trolley (Rated Speed 96/24 fpm (29.3/7.3 mpm))

Table 2: Hoist Specifications

Hoist Capacity		Base Hoist Model	Hoist Motor		Hoist Motor Amperage						Hoist Weight 10 ft (3m) lift	
metric tons	lb		hp	kw	Single Phase		Three Phase				lb	kg
					115V	230V	230V	460V	575V	380V		
1/8	275	Q25-1NS	0.4	0.30	8.4	4.2	---				44	20
1/4	550	Q25-2NS									51	23
		Q50-1NS	0.7	0.53	9.8	4.9					49	22
		Q25-1NS	0.6	0.45	---		2.4	1.2	1.0	1.2	44	20
		Q25-1ND					3.6	1.8	1.5	1.8	46	21
		Q50-1HS	1.5	1.10			4.2	2.1	1.7	2.1	49	22
		Q50-1HD	1.2	0.90			4.4	2.2	1.8	2.2	51	23
1/2	1100	Q50-2NS	0.7	0.53	9.8	4.9	---				55	25
		Q25-2NS	0.6	0.45	---		2.4	1.2	1	1.2	51	23
		Q25-2ND					3.6	1.8	1.5	1.8	53	24
		Q50-1NS	1.3	0.98			3.8	1.9	1.6	1.9	49	22
		Q50-1ND					4.4	2.2	1.8	2.2	51	23
		Q100-1HS	2.5	1.83			11.4	5.7	4.6	5.7	95	43
		Q100-1HD					9.8	4.9	4.0	4.9	104	47
1	2200	Q50-2NS	1.3	0.98			3.8	1.9	1.6	1.9	55	25
		Q50-2ND					4.4	2.2	1.8	2.2	57	26
		Q100-1NS	2.5	1.83			7.6	3.8	3.1	3.8	95	43
		Q100-1ND					8.0	4.0	3.2	4.0	104	47
2	4400	Q100-2NS					7.6	3.8	3.1	3.8	110	50
		Q100-2ND					8.0	4.0	3.2	4.0	119	54
		Q300-1NS	5.0	3.75			15.6	7.8	6.3	7.8	143	65
		Q300-1ND									147	67
3	6600	Q200-2NS	3.9	2.90			12.0	6.0	4.8	6.0	161	73
		Q200-2ND									165	75
4	8800	Q300-2NS	5.0	3.75			15.6	7.8	6.3	7.8	167	76
		Q300-2ND									172	78
5	11,000	Q500-2NS					16.8	8.4	6.8	7.1	167	76
		Q500-2ND										

INSTALLATION

Prior to installing the hoist and/or trolley, carefully inspect components for possible shipping damage. Hoists are supplied fully lubricated from the factory. Lubricate load chain before operating hoist.

⚠ CAUTION

• Owners and users are advised to examine specific, local or other regulations, including American National Standards Institute and/or OSHA Regulations which may apply to a particular type of use of this product before installing or putting hoist to use.
• A falling load can cause injury or death. Before installing hoist and/or trolley, read "SAFETY INFORMATION".

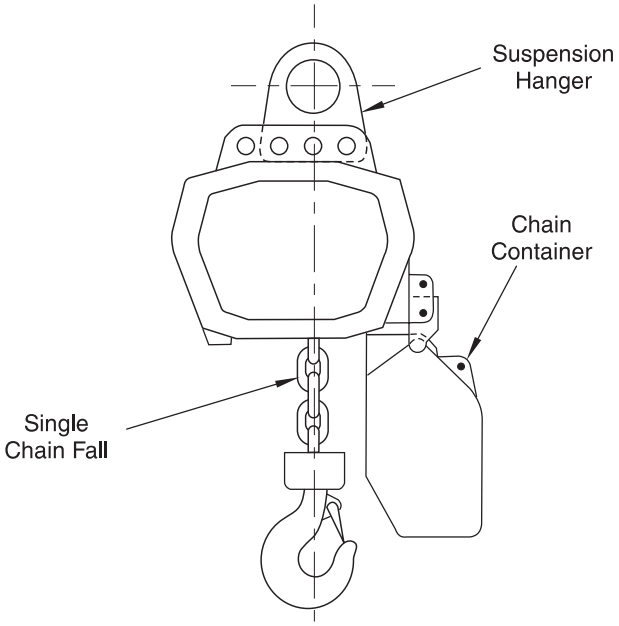
Hook or Eyebolt Mounted Hoist Installation

Place hook over mounting structure or through hoist eyebolt. Make sure hook latch is engaged. Ensure the supporting member rests completely within the saddle of the hook and is centered directly above the hook shank. Verify stops limit full rotation of top hook.

⚠ CAUTION

• Do not use a supporting member that tilts the hoist to one side or the other.

On single chain fall hoist models Q200/300 ensure suspension hanger is correctly positioned toward the chain container side. Refer to Dwg. MHP0796 on page 9.



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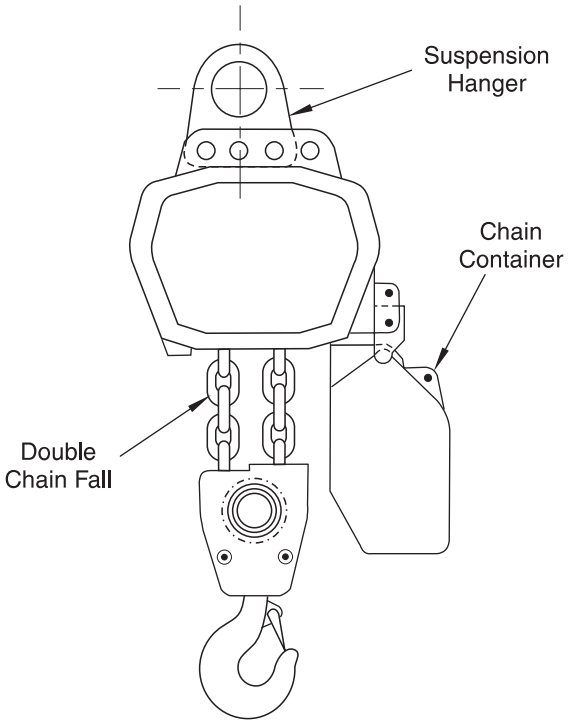
On double chain fall hoist models Q200/300/500 ensure suspension hanger is positioned furthest from the chain container side. Refer to Dwg. MHP0797 on page 9.



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Trolley and Hoist Installation

⚠ WARNING

• The hoist or hoist/trolley combination selected can weigh as much as 311 lbs. (141 kg). If parts of the trolley or hoist are dropped, they can cause injury or property damage. Adequately support the hoist and trolley when lifting item into place on the beam.
• To avoid an unbalanced load which may damage the trolley, the hoist must be centered under the trolley.
• Verify trolley carrying capacity. Trolley must provide an adequate safety factor to handle the rated load plus the weight of the hoist and attachments.

Installing Over the End of the Beam

Preadjust trolley width for the beam flange measurement. Refer to "Installing the Trolley from Underneath the Beam." Remove the rail stop and slide trolley on end of the beam. Reinstall rail stop. If this procedure cannot be used due to insufficient space or fixed limit stops, the trolley must be installed from underneath the beam using the procedure which follows.

Installing the Trolley from Underneath the Beam

For manual trolleys refer to PT Series Parts, Operation and Maintenance manual form number MHD56102 for complete trolley installation information.

For powered trolleys, refer to "QMT" Series Parts, Operation and Maintenance manual, form number MHD56108, for complete trolley installation information.

Power Connection

Power Supply conductors must be sized in accordance with NEC 310-15(b) specifications.

⚠ WARNING

• Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANAI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.

⚠ CAUTION

• Before connection of the electric chain hoist, check to ensure that the voltage specified on the serial number label matches that which is available.

The hoist should be installed and connected by a licensed electrician who is knowledgeable with NEC article 430 and local regulations. Ensure that the voltage and frequency of the electrical supply correspond with the data on the hoist serial number label before connecting the hoist.

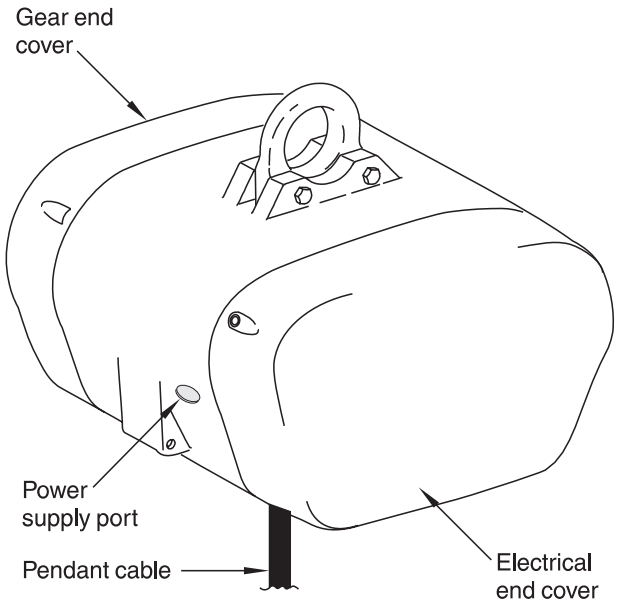
In addition the following points are of primary importance when installing and connecting the hoist:

Restricted Ventilation will cause a hoist motor to operate at a higher than desired temperature. Dirt, dust, chemicals, snow, oil etc. all can cause a problem. Avoid installing hoists where air flow will be restricted or excessive ambient temperatures may be encountered.

Voltage Unbalance can cause excess temperature rise resulting in premature hoist motor failure. Periodically check voltage.

Electrical Connections, if not tight and secure, will be an endless cause of trouble. During installation the electrician must make sure that all electrical connections including the ground connection are secure. Make sure all junction boxes and switch enclosures are adequately sealed and protected for the environmental conditions to be encountered.

Standard hoists are supplied with a 15 foot (4.5 metre) power cord and are ready to install. If an alternate power cord is used to connect the hoist, remove the electrical end cover which is located nearest the power supply and pendant cable ports. Refer to Dwg. MHP0816 on page 10. Do not remove gear end cover. Connect the power supply cable.



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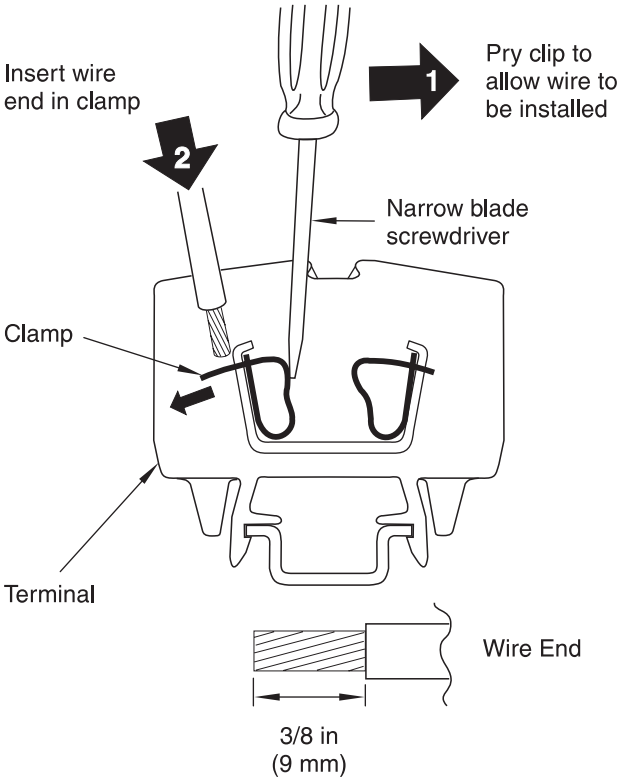
The electric chain hoist must be connected in accordance with supplied wiring diagrams. Remove approximately 3/8 in. (9 mm) of the electrical power cable protective casing to expose cable. Open the integrated clamp with a narrow blade 1/8 in. (3.5 mm) wide screw driver, as shown in Dwg. MHP0795 on page 10, and install power cable end. Cables (leads) can be identified by color, or in the case of pendant cables, by numbers taped to each cable. Terminals are identified by letters or labels on the terminal blocks. Manufacturer-supplied cables have bare wire ends.



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Fuses

Check the fuses in the electrical compartments of the hoist and motorized trolley if used. The value of the fitted fuses must coincide with the values provided for the appropriate motor [hoist/trolley] type. Refer to Table 3: Fuse Size on page 11.

⚠WARNING

• At no time use higher value fuses than stated in Table 5 Fuse Size.

Table 3: Fuse Size

Hoist Model Number	Phase	Fuse Size		
		Amps	Voltage	Hz
Q25-1N	1	1.6	220	60
Q25-2N				
Q50-1N				
Q50-2N				
Q25	3		230	
Q50				
Q100				
Q 200				
Q 300				
Q500				

Ground (Earth) Connections

The power supply cord includes a grounding (earth) conductor (green wire). Ensure grounding (earth) conductor is connected to the green/yellow connector terminal.

⚠ DANGER

• The ground (earth), green or green/yellow wire, must not carry any power. When hoist is supplied with a trolley, the power supply is enclosed in the trolley relay box.

NOTICE

• The ground (earth) connection must be wired to the green/yellow ground (earth) connection terminal. Ground (earth) wire of the terminal power supply is connected to the yellow/green wire (PE).

Direction of Movement Check

⚠ CAUTION

• Hoist operation must be in accordance with the control pendant symbols. If hoist does not operate in accordance with control pendant symbols then hoist is misphased. Should this be the case, then on single phase hoists the two power cables (L1 and L2) must be switched. For three phase hoists switch any two power cables.

Load Chain

Prior to hoist start-up and during operation the load chain must be regularly lubricated along its full length. The internal, contacting and rubbing surfaces of the chain links must have constant lubrication. Refer to “LUBRICATION” section for additional information.

Limit Switch

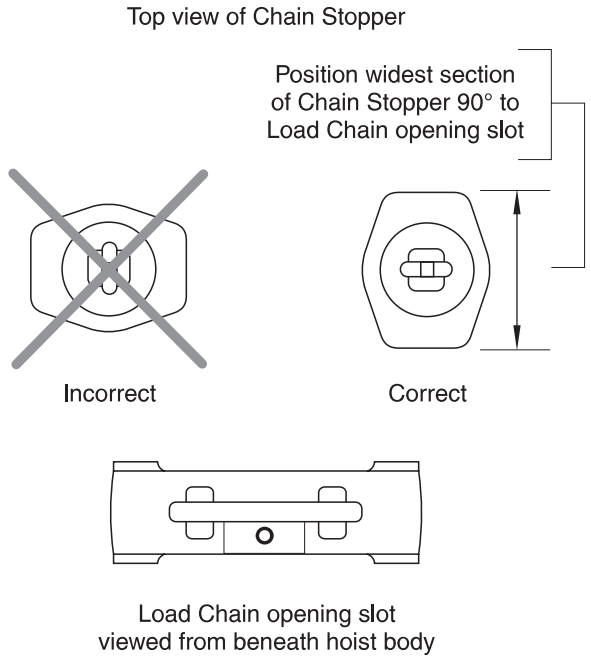
⚠WARNING

• Ensure that the limit stop assembly is properly installed. Refer to Dwg. MHP0798 on page 11.

The operation of the limit switch (highest and lowest hook positions) must be checked at start-up.

Adjust position of chain stopper on load chain to ensure that the widest section of the chain stopper is at right angles (90°) to the chain opening slot in the hoist body. Run hook to its lowest position to verify correct installation.

Chain Stopper Installation



(Dwg. MHP0798)

Attaching Free End of Load Chain

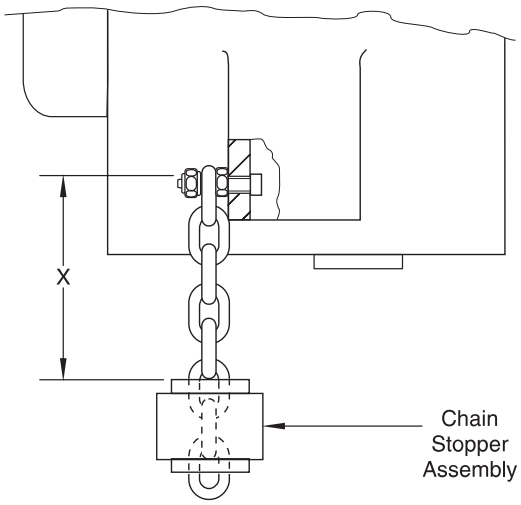
Required on all hoists which are ***not*** equipped with a chain container. Refer to Dwg. MHP0799 on page 12.

1. Install chain stopper on the free end of the load chain. Refer to distance ‘X’ in the Table 4 on page 12 for correct position of chain stopper from the end of the load chain.
2. Attach the free end of the load chain to the hoist housing.

After installing load chain, make sure it is not twisted or kinked. Adjust as required before using hoist.

⚠ WARNING

• If no chain bucket is mounted, then the chain free end must be affixed to the hoist housing in accordance with Dwg. MHP0799 on page 12 and Table 4 on page 12.



(Dwg. MHP0799)

Table 4: Chain Stopper Location

Hoist Model Number	Distance 'X'	
	in.	mm
Q25	5	120
Q50		
Q100	6.3	160
Q200		
Q300		
Q500		

Chain Container (optional feature)

⚠ CAUTION

• Do not pile chain carelessly in the chain container. Piling the chain carelessly into the container by hand may lead to kinking or twisting that can jam the hoist.
• Ensure chain stopper is attached to load chain.

1. Check the chain container size to make sure the length of load chain is within the capacity of the chain container. Refer to the chain container capacity information provided in the "PARTS" section. Replace with a larger chain container, if required.
2. Attach chain stopper to the last link of the load chain free end.
3. Run the hoist in the lowering direction until the limit switch is activated.
4. Attach the chain container to the hoist:
   a. On Q25 and Q50 hoists, install chain container support bracket (126) on hoist with capscrew (127) and nut (125).
   b. On all hoists, position chain container on hoist and align shaft locating holes.
   c. Install shaft (128) and secure at each end with a spring clip (124). Ensure spring clips are fully seated in shaft grooves. On Q100, Q200, Q300 and Q500 hoists also install cover (129) and spring (130) prior to installing spring clips. When correctly installed spring will ensure chain bucket remains clear of load chain.
5. Run hoist in up direction to feed the chain into the chain container.

NOTICE

• When feeding chain into the chain container begin with the chain stopper end of the chain and allow chain to pile naturally.

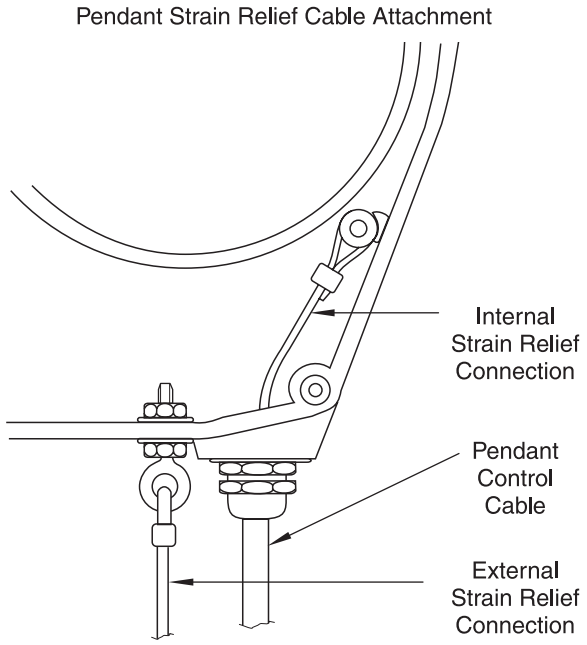
Pendant Connection

The control pendant can be supported with either an external or internal strain relief cable connection. Do not knot or loop the control pendant power supply cable as this will make the strain relief cable ineffective and place undue stress on the electrical connections.

1. Check electrical power supply cable is correctly installed and secure.
2. Check pendant strain relief cable is securely attached. Refer to Dwg. MHP0800 on page 12.

⚠ CAUTION

• The strain relief cable must be installed to ensure the control pendant power cable is not stressed or loaded.



(Dwg. MHP0800)

⚠ CAUTION

• Avoid clamping, knotting and crushing of electrical cable. Check cable clamps and anchoring devices are securely attached and tight.

Handi-Pendant Installation (optional feature)

Refer to Dwg. MHP0928 on page 56.

WARNING

• Disconnect power from hoist system.

1. Remove the bottom block assembly (112).
2. Slide the cable connector on to the control cable (316) at motor end.
3. Place load chain through middle of coiled control cable. Slide control cable up to motor. Temporarily fasten control cable to chain with tape or string.
4. Remove cover (2) on hoist.
5. Note current pendant control wire connections on terminal block. Disconnect wires and remove old control cable with cable connector.
6. Insert new cable connector with locknut (this one is a 90° elbow) into hoist body and twist until tight. Do not tighten with locknut at this time.
7. Push control cable (316) wire ends through strain relief connector until about 3/4 inch (19 mm) of cable covering is exposed.
8. Slide clamp over wires and onto cable cover about 1/2 inch (13 mm) and tighten.
9. Pull control cable until clamp is touching hoist body (64). Push cable connector together and tighten.
10. Twist cable connector until it is pointing in the direction of control cable coils and then tighten the locknut.
11. Connect new control cable (316) wires to terminal block (as noted earlier).
12. Replace cover (2) on hoist. Release control cable from chain.
13. Push control cable up load chain (from load end) about 18 inches (457 mm) and temporarily fasten.
14. Slide chain guide (106) and spring (107) onto chain and up about 12 inches (305 mm).
15. Attach chain stopper (103) right below spring (107) and finger tighten screws.
16. Place half of the bottom block assembly (112) onto end of load chain and insert pendant connector (333). Clamp the other side of the chain connector into place and fasten with screws.
17. Remove screws (311) and lockwashers (313) from top of pendant body (314).
18. Lift pendant assembly up and place socket on top of pendant body (314) into connector (333).
19. Insert screws (311) and lockwashers (313) and tighten.
20. Remove screws (311) and lockwashers (313) from bottom socket of pendant body (314).
21. Insert load hook (113) into socket. Orient hook throat to the position best suited for operation. Insert screws (311) and lockwashers (313) and tighten.

Connecting Control Cable

1. Remove cable connector cap, rubber grommet and plastic washer.
2. Screw cable connector body into pendant body (314), when strain relief body is pointed straight up, use locknut to tighten.
3. Free control cable from chain. Place cable connector cap on control cable followed by rubber grommet and plastic washer.
4. Remove screws (303 and 305) and lockwashers (304), carefully remove switch cover (302).
5. Push control cable wire ends through strain relief connector until about 3/4 inch (19 mm) of cable covering is exposed.
6. Slide clamp over wires and onto cable cover about 1/2 inch (13 mm) and tighten.
7. Pull control cable until clamp (15) is touching pendant body (314). Push cap together and tighten.
8. Insert screw through ground (earth) tab, ground (earth) wire eyelet and into pendant body (314) then tighten.
9. Connect control cable wires to terminal strip (4). Refer to wiring diagrams.
10. Place switch cover (302) onto pendant body (314) with lever (300) between the handle shields. Ensure that all wires are inside body.
11. Insert screws (303) and lockwashers (304) into the holes on the lever end. Insert screws (305) and lockwashers (304) into the other end and tighten.
12. Place gasket (320) over rear access hole followed by cover (319).
13. Insert screws (318) and tighten.

Adjusting Height of Limit Stop

1. Operate the Handi-Pendant and, raise the hook to the highest position that it should go.
2. Loosen screws in chain stopper (103) and remove.
3. Slide spring (107) and chain guide (106) up chain until chain guide (106) touches the bottom of the hoist.
4. Place chain stopper (103) back on chain directly below spring (107). There should be some tension in spring. Tighten screws.

Testing Pendant

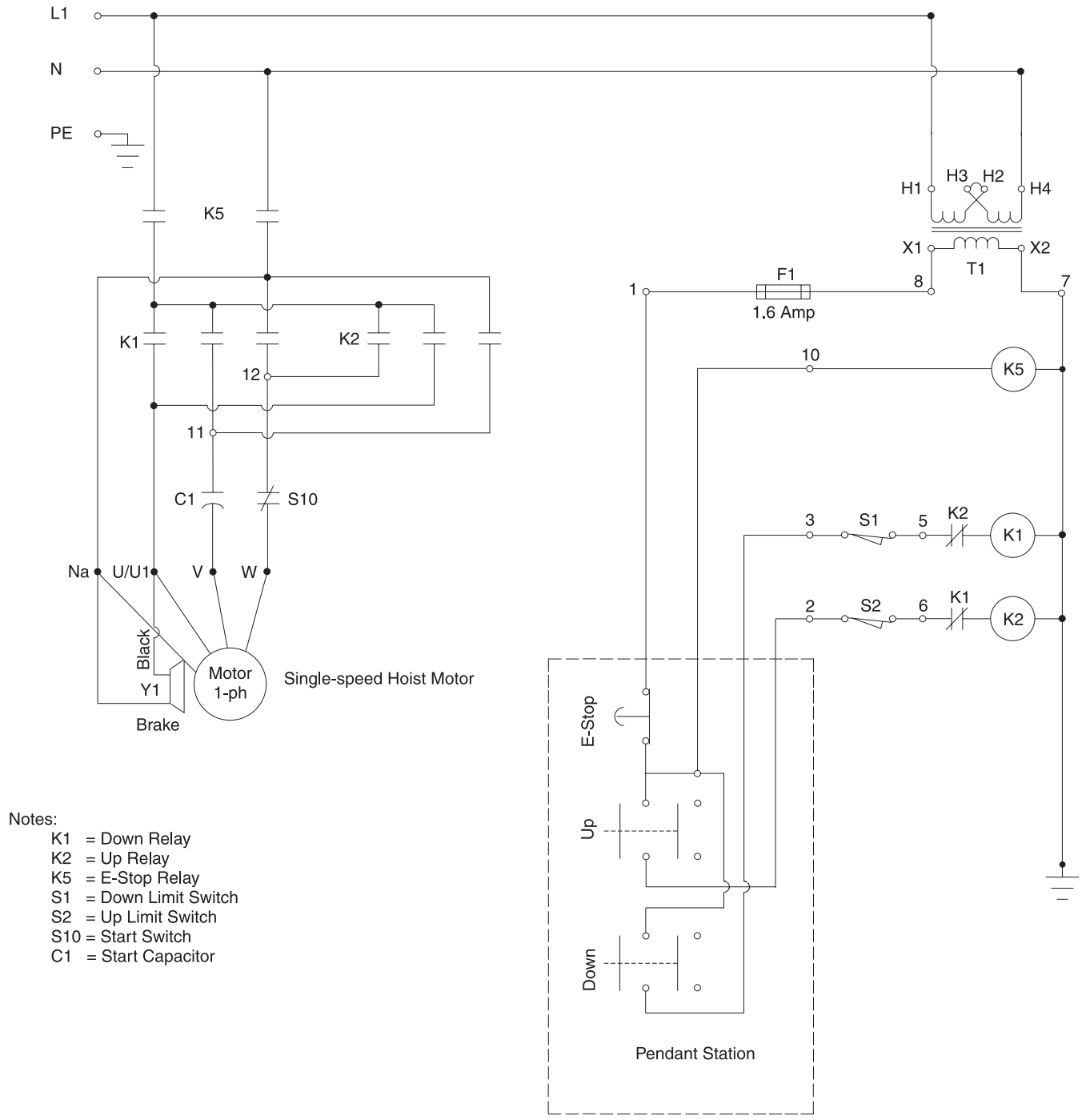
Refer to Testing Pendant in “MAINTENANCE” section.

Testing Pendant Limit Stop

1. With no load and in low speed, run limit stop assembly up to the bottom of the hoist.
2. Unit will not operate in the Up direction. Unit will allow Down operation.

WIRING DIAGRAM

Single Speed, Single Phase Hoist with Emergency Stop



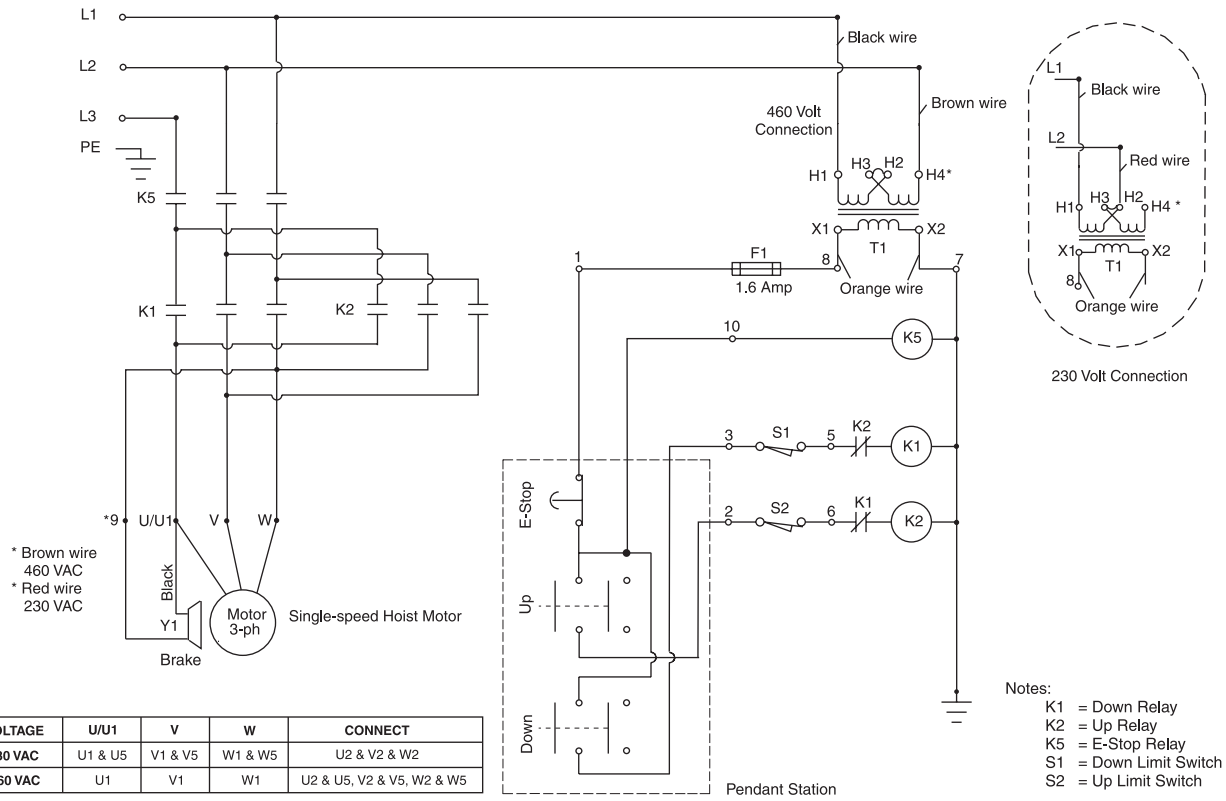
Notes:

K1 = Down Relay
K2 = Up Relay
K5 = E-Stop Relay
S1 = Down Limit Switch
S2 = Up Limit Switch
S10 = Start Switch
C1 = Start Capacitor

(Dwg. MHP0815)

WIRING DIAGRAM

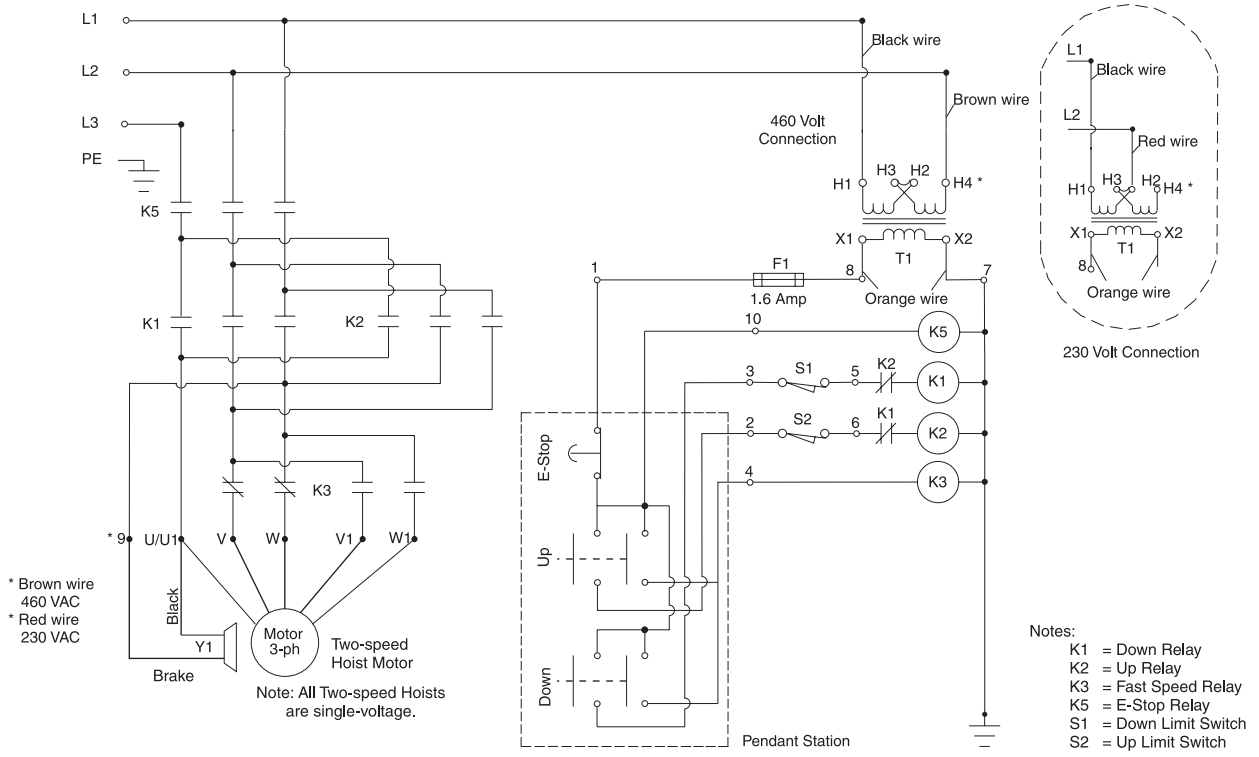
Single Speed, Three Phase Hoist with Emergency Stop



VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP0814)

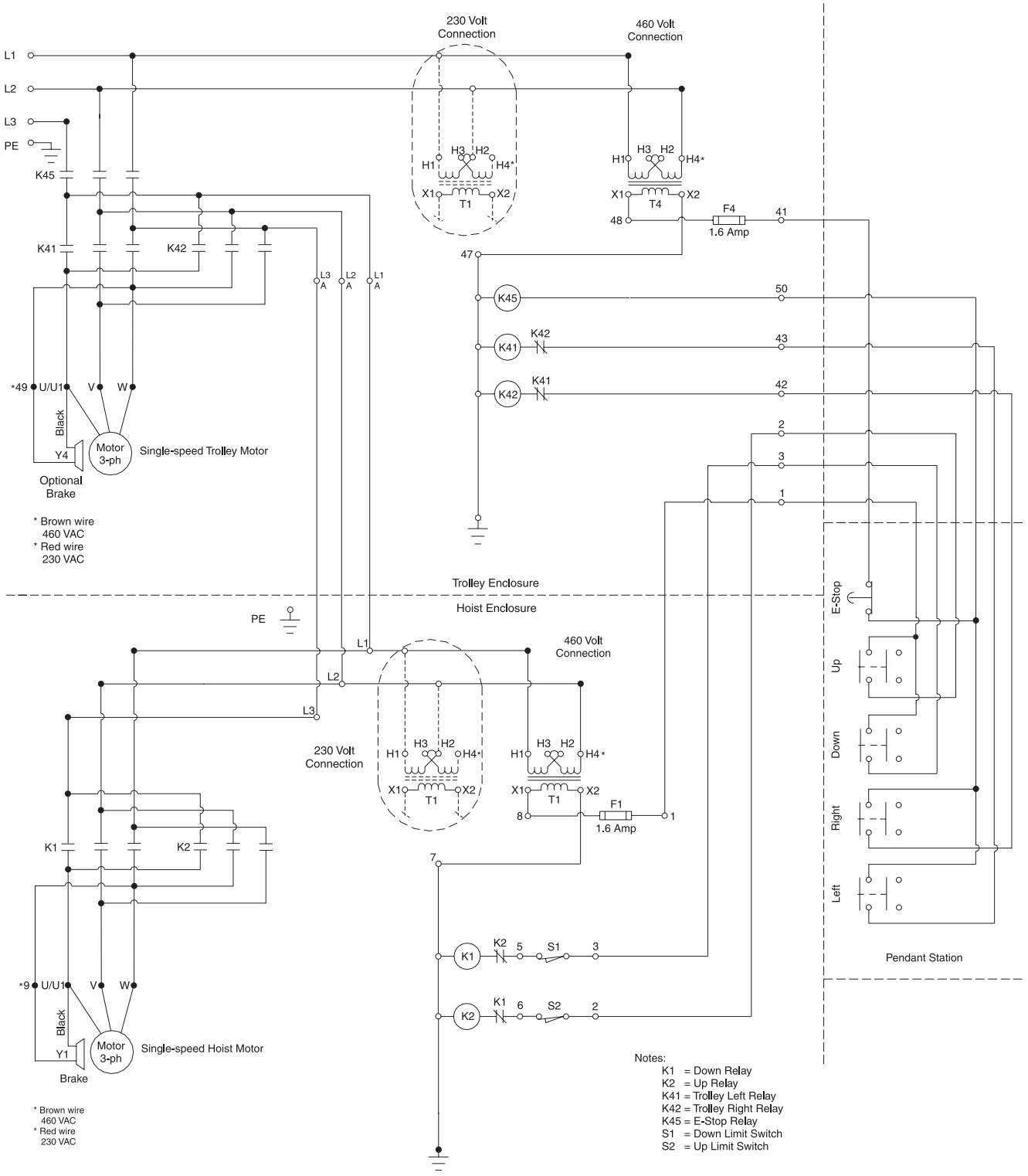
Two Speed, Three Phase Hoist with Emergency Stop



(Dwg. MHP0813)

WIRING DIAGRAM

Single Speed, Three Phase Hoist with Emergency Stop and Single Speed, Three Phase Trolley

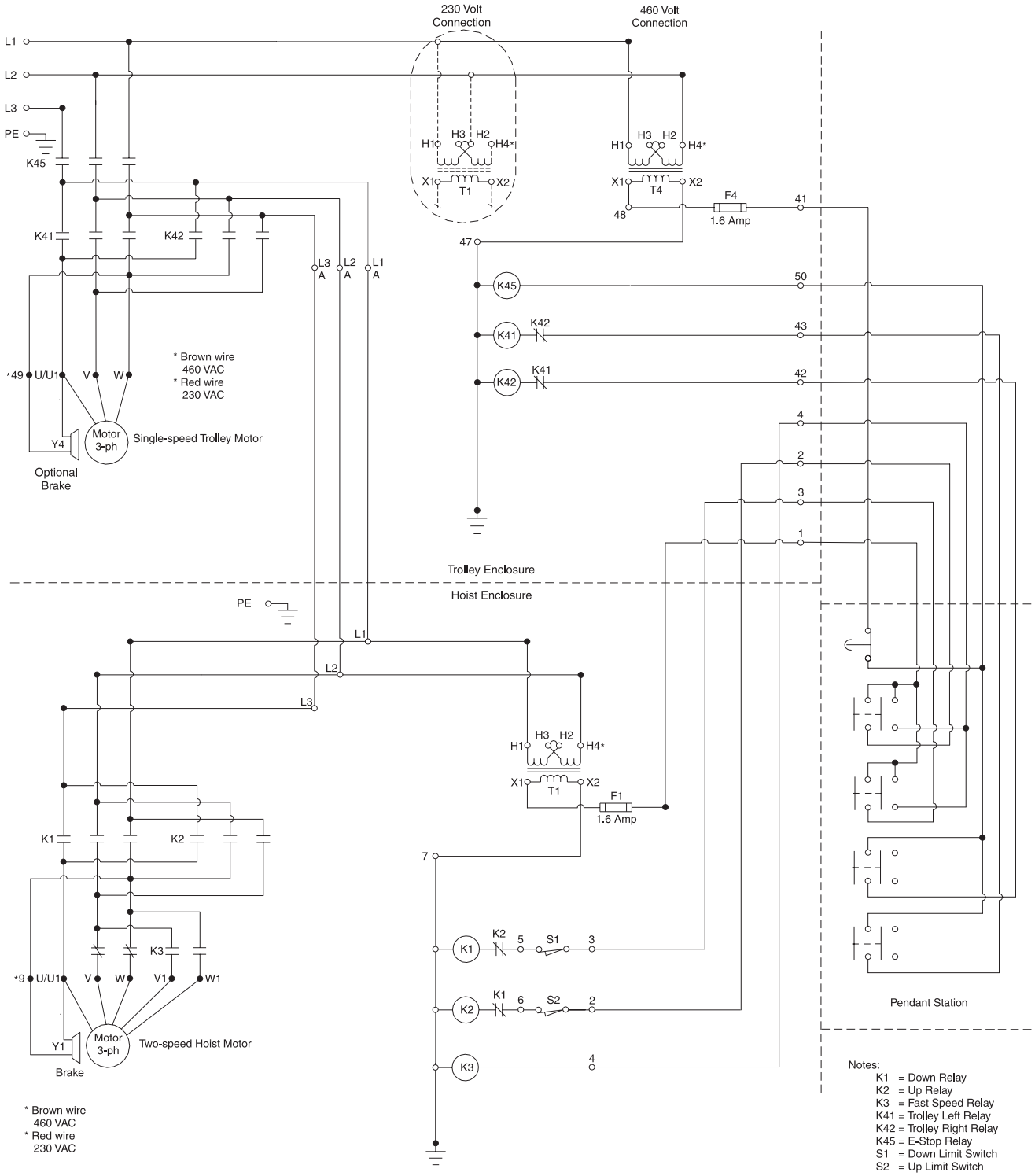


VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1111)

WIRING DIAGRAM

Two Speed, Three Phase Hoist with Emergency Stop and Single Speed, Three Phase Trolley

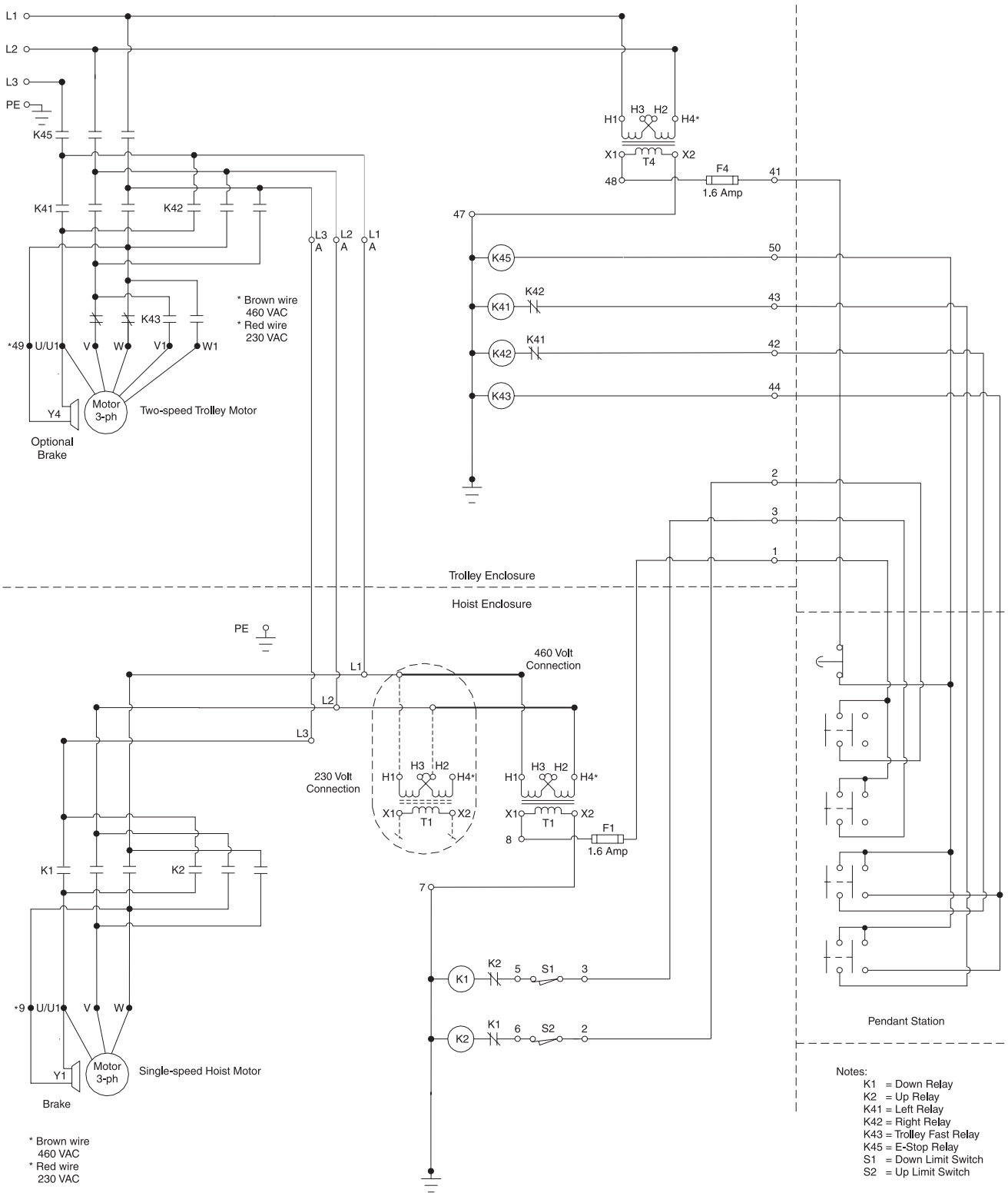


VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1112)

WIRING DIAGRAM

Single Speed, Three Phase Hoist with Emergency Stop and Two Speed, Three Phase Trolley

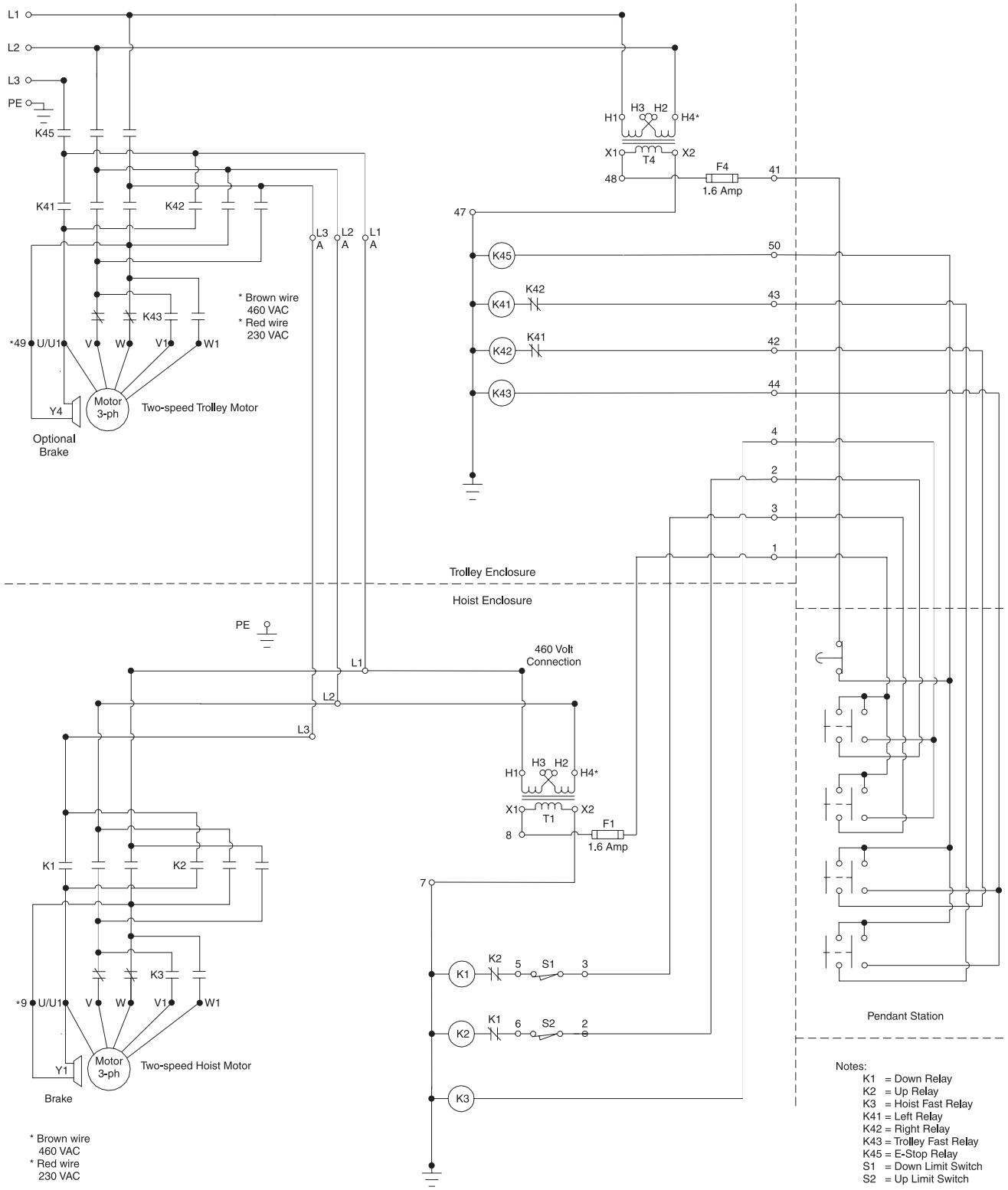


VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1113)

WIRING DIAGRAM

Two Speed, Three Phase Hoist with Emergency Stop and Two Speed, Three Phase Trolley



(Dwg. MHP1114)

OPERATION

The four most important aspects of hoist operation are:
1. Follow all safety instructions when operating hoist.
2. Allow only personnel trained in safety and the operation of this product to operate hoist.
3. Subject each hoist to a regular inspection and maintenance program.
4. Be aware of the hoist capacity and weight of load at all times.

Operators must be physically competent. Operators must have no health condition which might affect their ability to act, and they must have good hearing, vision and depth perception. The hoist operator must be carefully instructed in his duties and must understand the operation of the hoist, including a study of the manufacturer's literature. The operator must thoroughly understand proper methods of hitching loads and should have a good attitude regarding safety. It is the operator's responsibility to refuse to operate the hoist under unsafe conditions.

Initial Operating Checks

Hoists are tested for proper operation before leaving the factory. Prior to placing the hoist into service the following initial operating checks should be performed.
1. After installation of trolley mounted hoists, check to ensure the hoist is centered and secure.
2. Check connections and position of all electrical supply cords and plugs.
3. If hoist is attached to a trolley, operate along the entire length of the beam.
4. Check hoist performance when raising, moving and lowering test load(s). Hoist and trolley must operate smoothly prior to being placed in service.
5. Check to see that the load is securely inserted in the hook, and that the hook latch is engaged.

⚠WARNING

• The hoist is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.

Pendant Operation

The pendant is a remote control that allows an operator to control the positioning of a load. It will allow the operator to control hoist movements while maintaining his position at the work position thereby; allowing exact positioning of the hook. Optional controls can be supplied with motorized trolley operation. The Emergency Stop will stop all operations of the hoist and trolley in the event of an emergency. The trolley control will move a suspended load (left or right) along its track with a powered trolley.

Control Pendants

Refer to Dwg. MHP0801 on page 20.
Quantum electric chain hoists have, as standard fitting, push button control switches for the following functions:

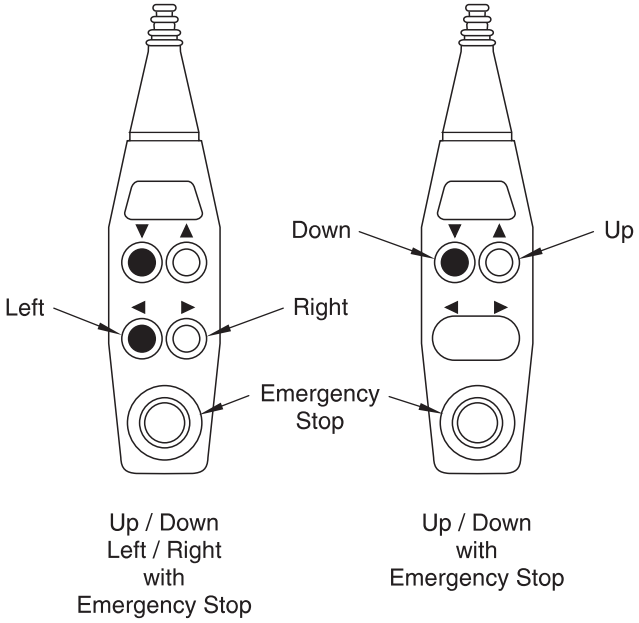
Up / down
Single or dual speed
Emergency stop (red button)

Additionally, the following push button control switches can be incorporated for trolley movement:

Left / right

Ensure hoist, and if equipped, motorized trolley operation matches direction of pendant buttons. Refer to "INSTALLATION" section for correct wiring connections.

Excessive jogging of the pendant buttons will reduce duty cycle time and cause increased temperature rise at the motor.



(Dwg. MHP0801)

For dual speed operation, control pendant buttons have two positions. Depressing the button to the first position produces normal speed. Depressing the button to the full extent of its travel produces high speed.

Emergency Stop

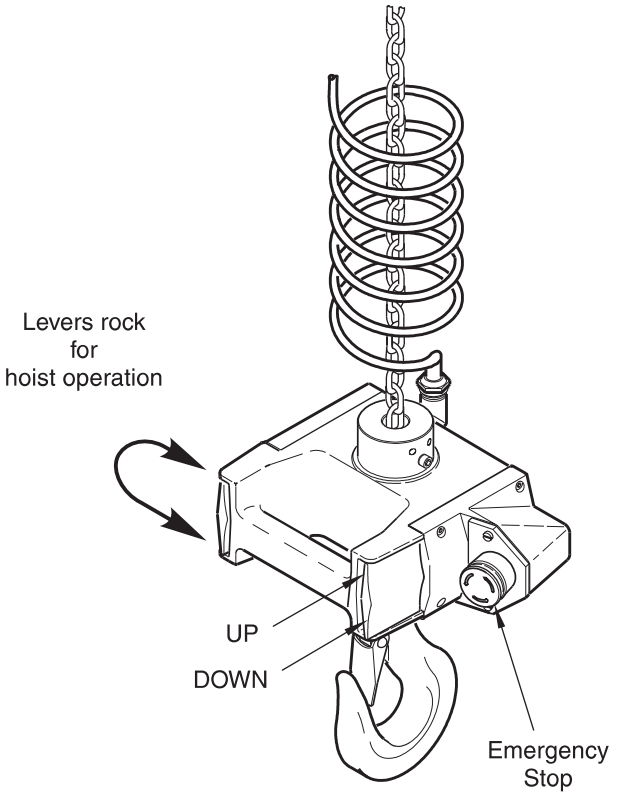
The emergency stop button will remain depressed after activation. To reset twist (rotate) emergency stop button clockwise until button releases and spring returns to its original position. When a hoist and trolley combination is used the emergency stop is integrated in the trolley relay box.

Handi-Pendant Operation (optional feature)

Refer to Dwg. MHP1010 on page 21.
The pendant is a remote control that has the load hook attached. This allows an operator to control hoist movement while maintaining direct contact with the load. The control levers which are on both sides of the pendant allow right or left hand operation. The pendant has two speeds. Pushing the lever to the first detent position provides low speed, pushing all the way down will produce high speed. The Emergency Stop button will stop all hoist operations in the event of an emergency.

⚠ CAUTION

• A swinging load can cause injury and/or damage to property. Do not allow load to swing freely. Maintain contact with load at all times.



(Dwg. MHP1010)

INSPECTION

Inspection information is based in part on American National Standards Institute Safety Codes (ASME B30.16).

⚠ WARNING

• All new, altered or modified equipment should be inspected and tested by personnel trained in safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.

Frequent and periodic inspections should be performed on equipment in regular service. Frequent inspections are visual examinations performed by operators or service personnel and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment. ASME B30.16 states inspection intervals depend upon the nature of the critical components of the equipment and the severity of usage. The inspection intervals recommended in this manual are based on intermittent operation of the hoist eight hours each day, five days per week, in an environment relatively free of dust, moisture, and corrosive fumes. If the hoist is operated almost continuously or more than the eight hours each day, more frequent inspections will be required.

Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.

Deficiencies revealed through inspection, or noted during operation, must be reported to designated personnel trained in safety, operation and maintenance of this equipment. A determination as to whether a condition constitutes a safety hazard must be decided, and the correction of noted safety hazards accomplished and documented by written report before placing the equipment in service.

Records and Reports

Inspection records, listing all points requiring periodic inspection should be maintained for all load bearing equipment. Written reports, based on severity of service, should be made on the condition of critical parts as a method of documenting periodic inspections. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for review.

Load Chain Reports

Records should be maintained documenting the condition of load chain removed from service as part of a long-range load chain inspection program. Accurate records will establish a relationship between visual observations noted during frequent inspections and the actual condition of the load chain as determined by periodic inspection methods.

Frequent Inspection

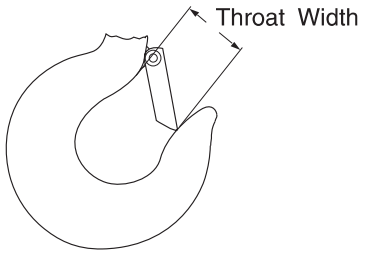
For hoists in continuous service, frequent inspection should be made by operators at the beginning of each shift. In addition, visual inspections should be conducted during regular operation for any damage or evidence of malfunction.

1. OPERATION. Check for visual signs or abnormal noises (grinding etc.) which could indicate a potential problem. Check load chain feed through the hoist. If chain binds or jumps, clean and lubricate. If problem persists, replace the chain. Do not operate the hoist until all problems have been corrected.
2. HOOKS. Check for wear or damage, increased throat width (refer to Dwg. MHP0040 on page 22 and Table 5 on page 22), bent shank or twisting of hook (refer to Dwg. MHP0111 on page 22). Refer to the latest edition of ASME B30.10 “HOOKS” for additional information. Check hook support bearings for lubrication or damage. Check hooks swivel easily and smoothly.

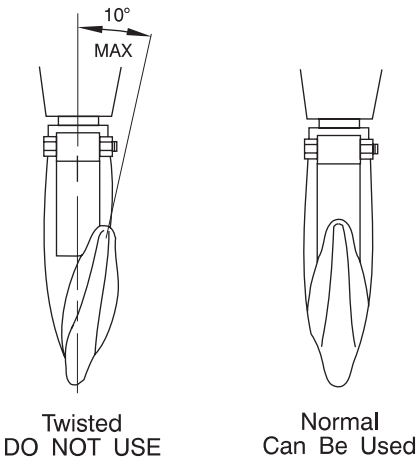
Table 5: Load Hook

Hoist Model	Throat Width *		Discard Width	
	in	mm	in	mm
Q25	1.06	27	1.22	31
Q50	1.1	28	1.26	32
Q100	1.34	34	1.54	39
Q200	1.30	33	1.49	38
Q300				
Q500				

* Dimensions are based on the throat width opening.

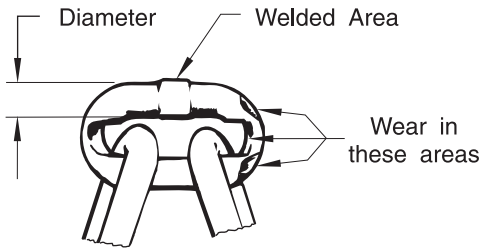


(Dwg. MHP0040)



(Dwg. MHP0111)

3. CHAIN. Examine each link for bending, cracks in weld areas or shoulders, traverse nicks and gouges, weld splatter, corrosion pits, striation (minute parallel lines) and chain wear, including bearing surfaces between chain links (refer to Dwg. MHP0102 on page 22). Replace a chain that fails any of the inspections. Check chain lubrication and lubricate if necessary. Refer to “Load Chain” in “LUBRICATION” section.



(Dwg. MHP0102)

⚠ CAUTION

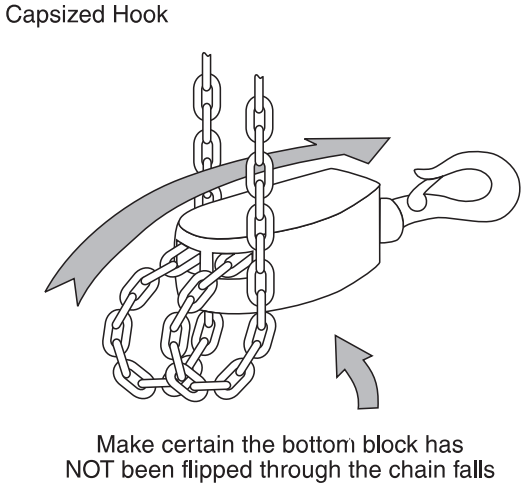
• Excessive wear or stretching may not be apparent from visual observation. At any indication of wear or stretching inspect the chain in accordance with instructions in “Periodic Inspection”. A worn load chain may cause the load sheave to wear rapidly. Inspect the load sheave and replace if damaged or worn.

4. CONTROLS. During operation of hoist, verify response to pendant is quick and smooth. Ensure that the controls return to neutral when released. If hoist responds slowly or movement is unsatisfactory, do not operate hoist until all problems have been corrected.
5. ELECTRICAL SYSTEM. Visually inspect all connections and components for indication of damage or loose connections. Shut off and disconnect power prior to removing inspection covers, repairing any damage or tightening connections.
6. HOOK LATCH. Make sure the hook latch is present and operating. Replace if necessary.

⚠ CAUTION

• Do not use hoist if hook latch is missing or damaged.

7. CHAIN REEVING. Ensure welds on standing links face in toward load sheave. Reinstall chain if necessary. On double fall hoists, make sure chain is not capsized, twisted or kinked. Adjust as required. Refer to Dwg. MHP0043 on page 22.



(Dwg. MHP0043)

8. BRAKE SYSTEM. Refer to Dwg. MHP0808 on page 31 in the “MAINTENANCE” section. Check to ensure the brake is able to hold the rated load without slippage. Check air gap.

⚠ CAUTION

• Should the brake solenoid (24) hum, buzz or vibrate, then the air gap (S) must be reset in accordance with Table 9 on page 31 in the "MAINTENANCE" section.
• Humming of the motor or slow lifting speed indicates oily or sticky brake discs (17) or worn or damaged brake cage (14). Dismantle and ensure brake discs are clean and dry. Brake cage must be replaced if damaged.

9. LIMIT SWITCH. Check to ensure chain stopper is securely attached to chain. On double fall hoists ensure lower hook sheave block capscrews are tightened to the correct torque. Refer to Table 7 on page 28 for torque specifications.

⚠ CAUTION

• On hoist models Q25 and Q50 only, replace damaged or worn spring components. Check limit switch arm movement is smooth and unrestricted.

10. SLIP CLUTCH. The slip clutch is factory pre-adjusted to slip at a nominal 150% of the hoist rated capacity. If the wear resistant lining is overheated the slip load will be reduced to 125%.

⚠ CAUTION

• Adjustment of the slip clutch should only be attempted by a service repair center and must be recorded in the inspection report.

11. SUSPENSION PARTS. All statically loaded parts are known as suspension parts. Refer to Table 7 Capscrew Torque Chart on page 28 in "MAINTENANCE" section. Torque values are for Grade 5 capscrews.

Periodic Inspection

Frequency of periodic inspection depends on the severity of usage:

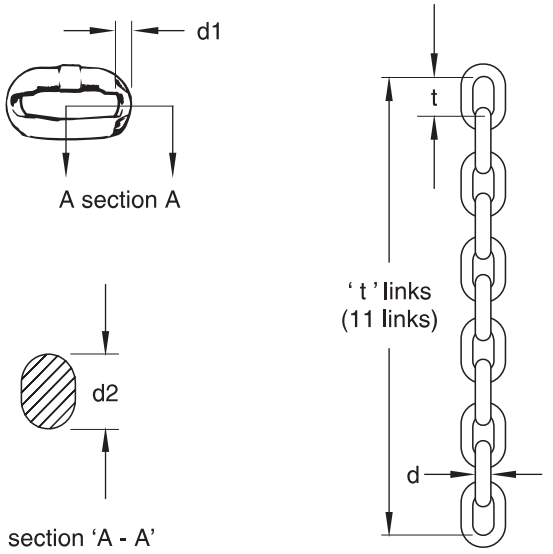
NORMAL	HEAVY	SEVERE
yearly	semiannually	quarterly

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative written records of periodic inspections to provide a basis for continuing evaluation. Inspect all the items in "Frequent Inspection". Also inspect the following:

1. FASTENERS. Check all rivets, split pins, capscrews and nuts. Replace if missing or tighten if loose.
2. ALL COMPONENTS. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check shafts, bearings, and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
3. HOOKS. Inspect hooks carefully for cracks using magnetic particle or other suitable non-destructive method. Inspect hook retaining parts. Tighten or repair, if necessary.
4. SUPPORTING STRUCTURE. Check for distortion, wear and continued ability to support load. A visual inspection of connecting bolts and safety wire should be done periodically depending on frequency of use.
5. TROLLEY (if equipped). Check that the trolley wheels track the beam properly. Refer to trolley manufacturer's manual. Check that wheels are not excessively worn and inspect side plates for spreading due to bending. Ensure trolley wheels and beam are clean. Remove any oil, grease or buildup to avoid slipping and ensure unobstructed trolley operation. Do not operate the hoist until problems have been determined and corrected.
6. LABELS AND TAGS. Check for presence and legibility. Replace if necessary. Refer to "WARNING LABELS AND TAG" and "PARTS LIST" for label and tag requirements.
7. LOAD CHAIN. Measure the chain for stretching by measuring across eleven link sections all along the chain, paying particular attention to the most frequently reeved links. When any eleven links in the working length reaches or exceeds the discard length, replace the entire chain. Refer to Dwg. MHP0802 on page 23 and Table 6 on page 24. Always use genuine **Ingersoll-Rand** Material Handling replacement load chain.

⚠ CAUTION

• The chain is to be replaced when the measurements exceed those specified in Table 6 on page 24. The load sheave and chain must be checked for wear at the same time, and, where necessary be replaced. Do not weld on or to the chain.



(Dwg. MHP0802)

8. CHAIN CONTAINER. Check for damage or excessive wear and that chain container is securely attached to the hoist. Secure or replace if necessary.

Hoists Not in Regular Use

1. A hoist which has been idle for a period of one month or more, but less than one year, should be given an inspection conforming with the requirements of "Frequent Inspection" prior to being placed into service.
2. A hoist which has been idle for a period of more than one year should be given an inspection conforming with the requirements of "Periodic Inspection" prior to being placed into service.
3. Standby hoists should be inspected at least semiannually in accordance with the requirements of "Frequent Inspection". In abnormal operating conditions hoists should be inspected at shorter intervals.

Table 6: Load Chain

Hoist Model	Chain Size when new						Discard Length					
	'd'		Single 't' link		11 't' links		Single 't' link		11 't' links		* 'dm'	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Q25	0.157	4	0.484	12.3	5.326	135.3	0.508	12.9	5.433	138	0.142	3.6
Q50	0.197	5	0.602	15.3	6.626	168.3	0.63	16	6.756	171.6	0.177	4.5
Q100	0.275	7	0.866	22	9.527	242	0.909	23.1	9.717	246.8	0.248	6.3
Q200	0.354	9	1.063	27	11.693	297	1.116	28.35	11.925	302.9	0.319	8.1
Q300	0.394	10	1.102	28	12.126	308	1.157	29.4	12.370	314.2	0.354	9
Q500												

* Measurement of the chain link diameter 'dm' = (d1 + d2)/2; ('dm' min. = 0.9 x 'd').

INSPECTION AND MAINTENANCE REPORT

Ingersoll-Rand QUANTUM Electric Chain Hoist

Model Number:				**Date:**	
Serial Number:				**Inspected by:**	
Reason for Inspection: (Check Applicable Box)					
	1. Scheduled Periodic Inspection ____Quarterly ____Semiannually ____Yearly			Operating Environment: Normal____ Heavy____ Severe____	
	2. Discrepancy(s) noted during Frequent Inspection				
	3. Discrepancy(s) noted during maintenance				
	4. Other:_____				
Refer to the Parts, Operation and Maintenance Manual "INSPECTION" section for general inspection criteria. Also, refer to appropriate National Standards and codes of practice. If in doubt about an existing condition contact the nearest **Ingersoll-Rand** Distributor or the factory for technical assistance.					
COMPONENT		**CONDITION**		**CORRECTIVE ACTION**		**NOTES**
		Pass	**Fail**	**Repair**	**Replace**	
Fasteners						
Shafts						
Bearings				---		
Chain Guide				---		
Brake				---		
Covers						
Controls						
Limit Switch						
Slip Clutch						
Electrical System						
Hooks:				---		
Top	Actual Hook Throat Width: _____ inches / _____ mm (reference Table 5: Load Hook on page 22 for minimum/maximum acceptable widths).					
	Hook Twist			---		(maximum 10%)
	Hook Crack Test Method Used: Dye Penetrant _____ Magnetic Particle _____ Other:_____					
Bottom	Actual Hook Throat Width: _____ inches / _____ mm (reference Table 5: Load Hook on page 22 for minimum/maximum acceptable widths).					
	Hook Twist			---		(maximum 10%)
	Hook Crack Test Method Used: Dye Penetrant _____ Magnetic Particle _____ Other:_____					
Hook Latch				---		
Load Chain				---		
Working length (s) maximum stretch:_____ inches / _____ mm (reference Table 6: Load Chain on page 24).						
Chain Stopper						
Supporting Structure						
Trolley						
Labels and Tags				---		
Other Components						

This page may be photocopied and used by inspectors or maintenance personnel.

LUBRICATION

To ensure continued satisfactory operation of the hoist, all points requiring lubrication must be serviced with the correct lubricant at the proper time interval as indicated for each assembly. Correct lubrication is one of the most important factors in maintaining efficient operation.

The lubrication intervals recommended in this manual are based on intermittent operation of the hoist eight hours each day, five days per week. If the hoist is operated almost continuously or more than the eight hours each day, more frequent lubrication will be required. The lubricant types are based on operation in an environment relatively free of dust, moisture, and corrosive fumes. Use only those lubricants recommended. Other lubricants may affect the performance of the hoist. Approval for the use of other lubricants must be obtained from your **Ingersoll-Rand** Technical Support Department or distributor. Failure to provide proper lubrication may result in damage to the hoist and/or its associated components.

Hook and Suspension Assemblies

1. Lubricate the lower hook and hook latch pivot points. Hook and latch should pivot freely.
2. Use **Ingersoll-Rand** LUBRI-LINK-GREEN or a SAE 50 to 90 EP oil.

Trolley (optional feature)

Refer to the manufacturer's literature for correct lubrication. For additional information on Quantum motorized trolleys, refer to Parts, Operation and Maintenance Manual Form Number MHD56108.

Load Chain

WARNING

• Failure to maintain a clean and well lubricated load chain will result in rapid load chain wear that can lead to chain failure which can cause severe injury, death or substantial property damage.

1. Lubricate each link of the load chain weekly. Apply new lubricant over existing layer.
2. In severe applications or corrosive environments, lubricate more frequently than normal.
3. Lubricate hook latch pivot point with the same lubricant used on the load chain.
4. To remove rust or abrasive dust build-up, clean chain with an acid free solvent. After cleaning, lubricate the load chain.
5. Use **Ingersoll-Rand** LUBRI-LINK-GREEN or a SAE 50 to 90 EP oil.

Gears

The gear compartment is filled with grease at the factory to provide continual lubrication. Replacement of the grease for the life of the hoist should not be required.

Lubrication grease:
Semifluid sodium soap/mineral oil based grease. NLGI consistency: “0” (ought). Texaco MARFAK 0. Texaco product code 0927.

Lubrication grease quantity:

Q25/Q50:	1.32 lb. (0.6 kg)
Q100:	2.65 lb. (1.2 kg)
Q200/Q300/Q500:	4.41 lb. (2.0 kg)

If it becomes necessary to remove the gear end cover, first ensure the hoist body is standing on end with the gear end cover up. Failure to observe this procedure will allow the grease to flow from the hoist. Whenever the gear end cover is removed, always replace the cover gasket.

CAUTION

• Use extreme care when removing gear end cover to avoid grease spillage.

TROUBLESHOOTING

This section provides basic troubleshooting information. Specific causes to problems are best identified by thorough inspections performed by personnel instructed in safety, operation and maintenance of this equipment. The chart below provides a brief guide to common hoist symptoms, probable causes and remedies.

Symptom	Cause	Remedy
Hoist will not operate.	No electrical supply to hoist.	Check electrical system connections, cords and fuses.
	Hoist is overloaded.	Reduce load to within rated capacity.
	Emergency Stop engaged.	Disengage Emergency Stop button.
	Transformer damaged.	Check power supply is within ± 10% range. Replace transformer if damaged.
Load continues to move when hoist is stopped.	Brake is slipping.	Check brake adjustment and brake cup disc wear. Check brake discs are clean.
	Hoist is overloaded.	Reduce load to within rated capacity.
Hoist does not lift load.	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
	Insufficient electrical supply.	Verify electrical voltage, phase, voltage drop and amperes under load/no load conditions.
	Slip clutch is worn or incorrectly adjusted.	Replace or adjust slip clutch assembly.
Hoist runs in opposite direction of Control Pendant operation.	Power cables (L1 and L2) are incorrectly located (cross phased).	Reverse the two power cables (L1 and L2).
Control Pendant is operated but hoist does not operate.	Control Pendant may be damaged.	Check Control Pendant for signs of damage. Refer to “INSPECTION” section.
	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
	No electrical supply to hoist.	Check electrical system connections, cords, fuses and circuit breaker.
Hoist runs slowly.	Improper electrical supply.	Verify electrical voltage, phase, voltage drop and amperes under load/no-load conditions.
	Oily or sticking brake discs.	Disassemble, clean and dry discs.
	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
Brake solenoid hums, buzzes or vibrates.	Brake solenoid air gap(s) incorrect.	Reset air gap(s). Refer to “MAINTENANCE” section.
Motor hums or lifting speed is slow.	Oily or sticking brake discs.	Disassemble, clean and dry brake discs.
	Brake disc tabs may be binding in brake cage.	Check brake discs slide freely in brake cage.
Electrical leak.	Poor grounding (earth).	Correctly ground (earth) power supply. Check wiring for broken wires.
	Foreign material or moisture on electrical connectors.	Dry or remove foreign material which may have accumulated on electrical parts.
	Short in power supply system.	Check all switches, connections and circuit breakers in power supply line for damaged insulation or contact with hoist frame.
Hoist lowers but will not lift.	Limit switch may be stuck.	Check limit switch movement.
	Contactor coil damaged.	Replace contactor.
Hoist does not stop at the end of load chain tavel.	Limit stop not working or being activated.	On multi reeved hoists, check load chain is not twisted or capsized. Check limit switch operation.

⚠WARNING

• Never perform maintenance on the hoist while it is supporting a load.
• Before performing maintenance, tag controls:
DANGER - DO NOT OPERATE -
EQUIPMENT BEING REPAIRED.
• Only allow personnel trained in service and repair of this hoist to perform maintenance.
• After performing any maintenance on the hoist, test hoist before returning hoist to service.
• Shut off and tag electrical disconnect switch before performing any maintenance.
• The lower sheave block or hook assembly must be lying on the floor or a maintenance platform before beginning service.

Maintenance Intervals

The Maintenance Interval chart is based on intermittent operation of the hoist eight hours each day, five days per week. If hoist operation is more than eight hours per day, or in severe applications or environments, more frequent maintenance should be performed.

INTERVAL	MAINTENANCE CHECK
Start of each shift (Operator or Maintenance Personnel)	Make a thorough visual inspection of the hoist for damage. Do not operate the hoist if damaged.
	Operate the hoist in both directions. Hoist must operate smoothly without sticking, binding or abnormal noises. Check the operation of the brake.
Semiannually (Maintenance Personnel)	Inspect the brake cup disc. Clean or replace parts as required. Adjust brake as necessary.
Yearly (Maintenance Personnel)	Inspect the hoist gearing, shafts and bearings for wear and damage. Repair or replace as necessary.
	Check all the supporting members, including the suspension, fasteners, nuts, sheaves and rigging, etc. for indications of damage or wear. Repair or replace as required.
	Check slip clutch adjustment.

General Maintenance Instructions

NOTICE

• It is recommend that maintenance work be performed by an Ingersoll-Rand service repair center.

All maintenance work performed on the hoist must be recorded with the date in the inspection report.

Proper use, inspections and maintenance increase the life and usefulness of your **Ingersoll-Rand** equipment. During assembly, lubricate gears, nuts, capscrews and all machined threads with applicable lubricants. Use of antiseize compound and/or thread lubricant on capscrew and nut threaded areas will help to prevent corrosion and allows for ease of disassembly of components.

It is recommended that all maintenance work on the hoist be performed on a bench in a clean dust free work area. During the process of disassembling the hoist, observe the following:

1. Turn off and tag electrical disconnect switch before performing any maintenance. Disconnect electrical cable from hoist.
2. Never disassemble the hoist any further than is necessary to accomplish the needed repair. A good part can be damaged during the course of disassembly.
3. Never use excessive force when removing parts. Tapping gently around the perimeter of a cover or housing with a soft hammer, for example, is sufficient to break the seal.
4. Do not heat a part with a flame to free it for removal, unless the part being heated is already worn or damaged beyond repair and no additional damage will occur to other parts.

In general, the hoist is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.

5. Keep the work area clean to prevent dirt and other foreign matter from getting into bearings and other moving parts.
6. All seals and ‘O’ rings should be discarded once they have been removed. New seals and ‘O’ rings should be used when assembling the hoist.
7. When grasping a part in a vise, always use leather or copper covered vice jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members, machined surfaces and housings.
8. Do not remove any part which is press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
9. To avoid damaging bearings during hoist assembly or disassembly always tap or press on the bearing inner race for shaft fit bearings or the outer race for bore fit bearings. When removing bearings from housings, drive out the bearing with a sleeve slightly smaller than the outside diameter of the bearing. The end of the sleeve or pipe that is used to contact the bearing must be square. Protect bearings from dirt by keeping them wrapped in clean cloths.
10. If repair work can only be conducted above body height, suitable working platforms or ladders should be made available.
11. Work on electrical equipment or machinery may only be conducted by licensed electricians or persons under the supervision and guidance of licensed electricians, in accordance with all appropriate electrical codes and regulations.

Table 7: Capscrew Torque Chart

Capscrew Size (metric)	Thread Pitch	Torque	
	mm	ft lbs	Nm
M5	0.80	4	6
M6	1.00	8	10
M8	1.25	18	24
M10	1.50	35	48
M12	1.75	61	83

Metric Grade 8.8

Chain Replacement

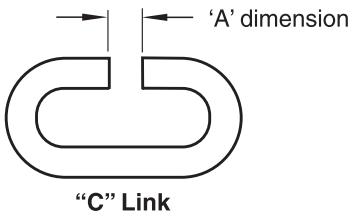
⚠ WARNING

• Before conducting maintenance on the hoist, lower and remove suspended load. Disconnect electrical supply and remove hoist from overhead suspension.

NOTICE

• For ease of installation, do not remove the old chain from the hoist. The old chain can be used to feed the new chain through the hoist.

1. Run bottom block to lowest point of travel and support bottom hook.
2. Remove chain container, if used.
3. Remove free end of chain from hoist body, if attached. Remove chain stopper.
4. Make a "C" link with the ***new*** chain by grinding through one side of the end link.
5. Hook "C" link to old chain connecting old and new chains. (If old chain was installed correctly, the "C" link assures that end link of new chain will be correctly reeved through the hoist). BE SURE WELDS of "standing" links on the new chain are facing in, towards load sheave.
6. On double fall hoists, check the first link of the new chain will correctly attach to anchor bolt on hoist.
7. Jog the hoist button to feed the new load chain into the hoist body. This will ensure the chain is housed correctly. Run the new chain 24 to 36 in. (610 to 914 mm) out the other side of the hoist.
8. On double fall hoists check that chain is not twisted, kinked, "capsized" or damaged. Remove one link to untwist, if required.
9. Attach chain stopper on free end of load chain as described in the "INSTALLATION" section.
10. Attach chain container.



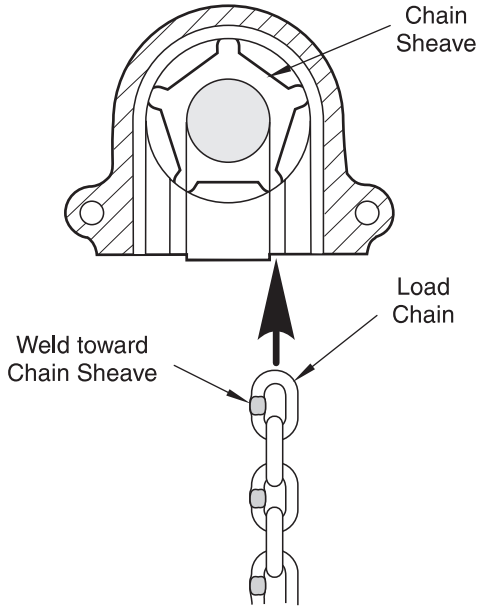
(Dwg. MHP0817)

Table 8: "C" Link Dimension

Hoist Model	Chain Size	'A' dimension	
		in	mm
Q25	4x12	0.20	5
Q50	5x15	0.25	6
Q100	7x22	0.32	8
Q200	9x27	0.40	10
Q300	10x28	0.48	12
Q500			

⚠ CAUTION

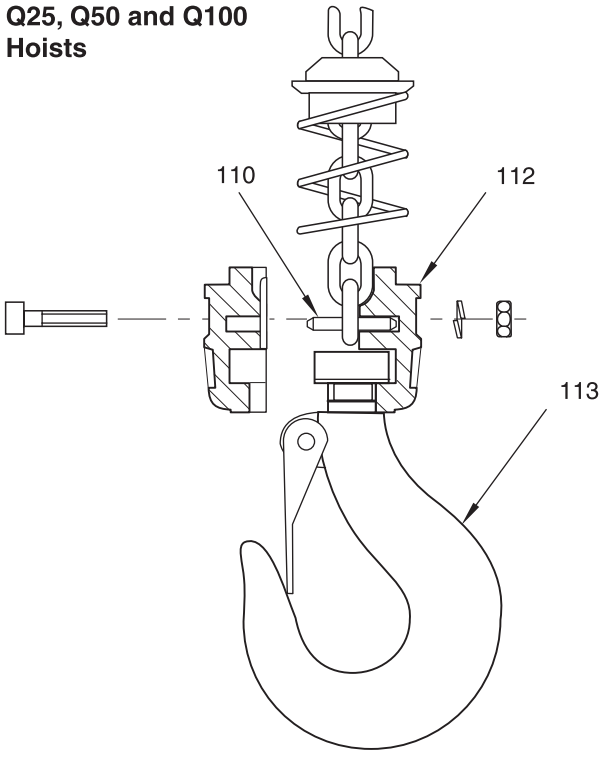
• Welded seams of the chain links must face inward on the load sheave. Refer to Dwg. MHP0803 on page 29.



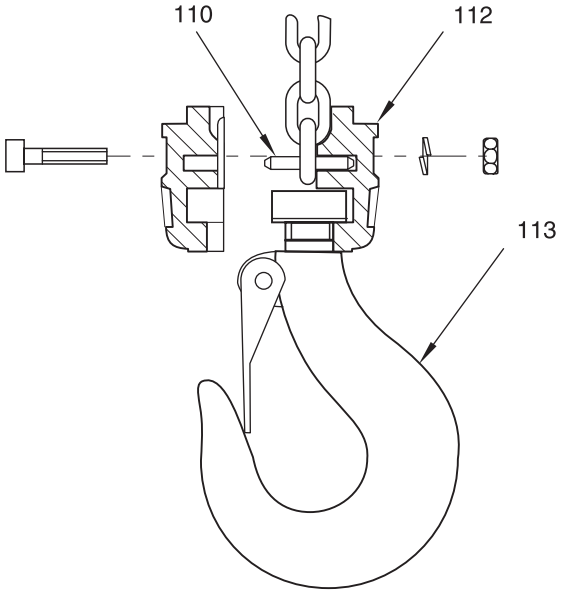
(Dwg. MHP0803)

Single Chain Fall Hoist Models Q25, Q50 and Q100

With single chain fall operation, the connection of the load hook (113) to the chain is accomplished with hook block assembly (112) as shown in Dwgs. MHP0804 on page 29 and MHP0805 on page 30. The last link of the chain must locate on pin (110). Apply a generous coat of grease to the hook shank and hook block recess. Clamp both halves of the hook block together to secure the hook to the chain.



(Dwg. MHP0804)



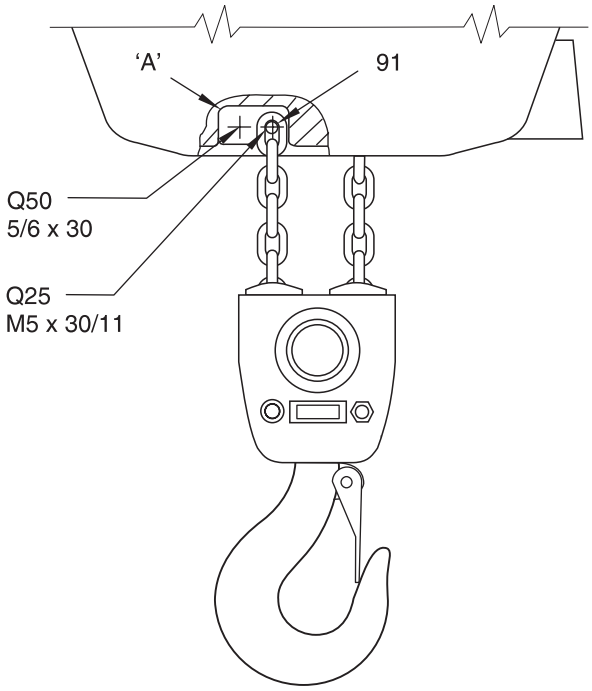
(Dwg. MHP0805)

Q200, Q300 and Q500 Hoists

Install pin (110) in last chain link. Apply a generous coat of grease to the hook shank and hook block recess. Slide retaining ring (178) onto chain. Clamp both halves of the hook block together and secure with retaining ring and setscrew (180).

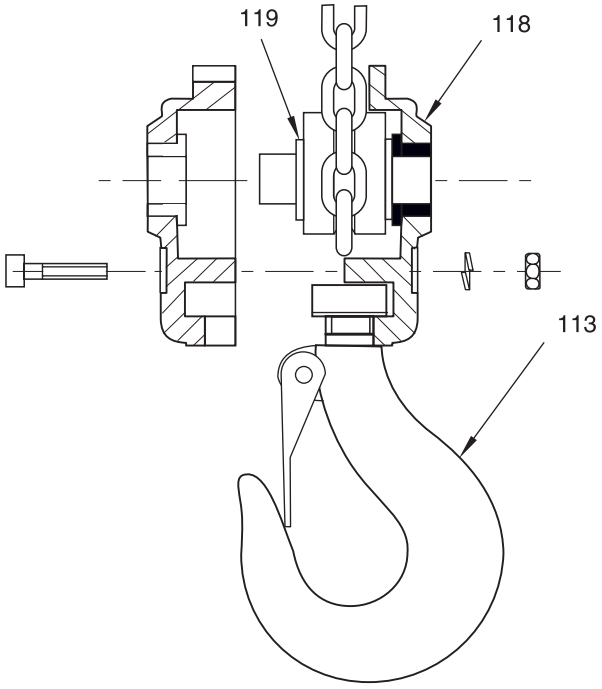
Double Fall (Reeved Hoist) All Models

With double fall operation, the load side of the chain end is affixed in the chain port ('A') of the housing using special capscrew (91), refer to Dwg. MHP0806 on page 30. Use only **Ingersoll-Rand** original capscrews. DO NOT SUBSTITUTE**.**



(Dwg. MHP0806)

Apply a generous coat of grease to the hook shank and hook block recess. Assemble bottom block assembly (118) with load hook (113). Refer to Dwg. MHP0807 on page 30.



(Dwg. MHP0807)

⚠ CAUTION

• Check chain is not twisted along its length. Use correct screws to secure the chain end to the hoist housing. Refer to Dwg. MHP0806 on page 30.

Brake Adjustment Procedure

Refer to Dwg. MHP0808 on page 31.

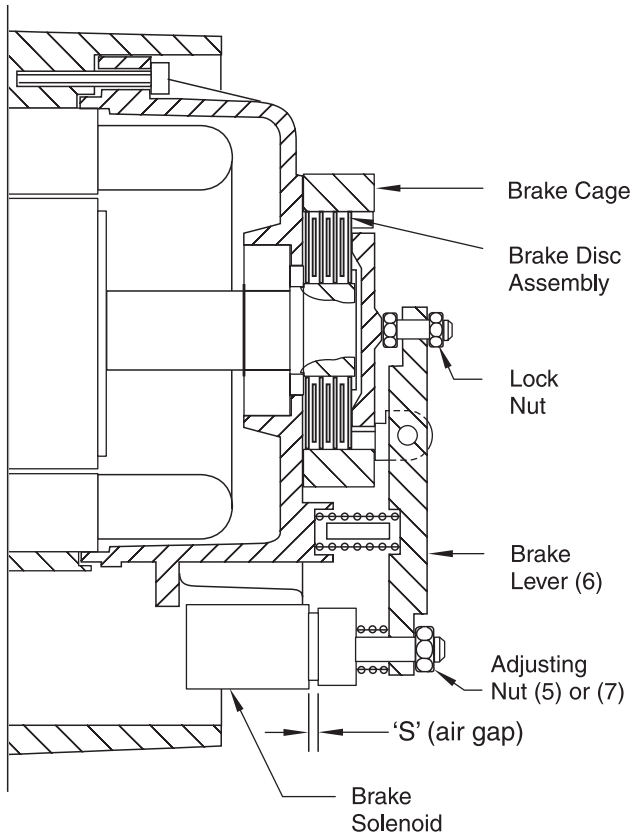
NOTICE

• By releasing the disc brake (carefully apply pressure on the brake lever (6) Dwg. MHP0808), the load can be lowered in a manual mode.
• Replace brake discs if they are distorted or severely discolored.

1. Turn nut (5) or (7) until the 'S' gap (refer to Table 9 on page 31) is established.
2. Push brake solenoid in and rotate cup disc (11) with fingers. Disc should rotate with a little drag. Loosen nut on capscrew (8). Adjust capscrew until disc rotates with a little drag. If cup disc is too loose the brake will chatter or hum during operation.
3. Repeat steps 1 and 2 until 'S' gap is correct and disc cup just rotates.

Brake Test

1. Use a test load that is 100% of hoist capacity.
2. With cover off, hoist load, in low speed mode, approximately 1 ft. (0.3 m).
3. Listen to brake while hoisting.
4. When hoisting stops, brake should hold load.

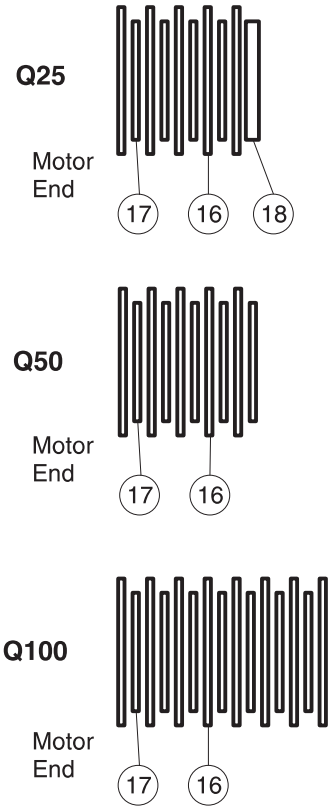


(Dwg. MHP0808)

Table 9: Brake Disc Chart

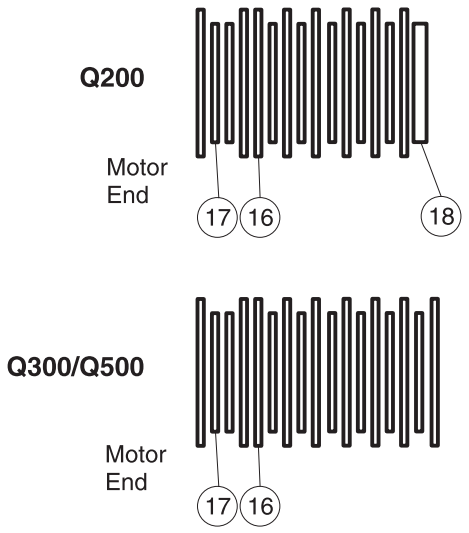
Hoist Model	Air Gap 'S'		Number of Discs	
	in	mm	internal	external
Q25	0.060 to 0.079	1.5 to 2	4	5
Q50			5	6
Q100			7	8
Q200				
Q300			8	9
Q500				

Brake Assembly for Models Q25, Q50 and Q100



(Dwg. MHP0809)

Brake Assembly for Models Q200, Q300 and Q500



(Dwg. MHP0810)

Slip Clutch Adjustment

1. Suspend the hoist from a suitable overhead support. Remove covers (2) on both gear and electrical side of hoist. The cover on the electrical end will not need to be removed if the hoist is already connected to a power source. Ensure a suitable container is available to collect grease when gear cover is removed. Avoid spillage.
2. If hoist is not connected to electrical power source, connect hoist at this time. Refer to "INSTALLATION" section.

⚠ CAUTION

• Electrical connections should only be performed by licensed electricians.

3. Operate hoist up and down several times. Lower the bottom block assembly until it is resting on the floor.
4. Install special tool through load chain link near the hoist body to prevent upward travel. Operate the hoist in the hoisting direction, for approximately one minute to warm up the slip clutch. Verify clutch slippage is constant.
5. Verify weight of test load and attach to bottom hook. Remove special tool which was preventing chain travel. Raise load.
6. If clutch does not slip at required load, adjust slip clutch with special tool on adjusting ring (85). Ensure special tool is securely installed then rotate adjusting ring.
7. Loosen screw (86) and tighten adjusting ring (85) to increase slip clutch capacity or loosen adjusting ring to decrease slip clutch capacity. Only a very slight movement of the adjusting ring in either direction is required.
8. Screw (86) must be tight when the hoist is operated to confirm adjustment amount.
9. Tighten screw (86) and remove special tool.

⚠ WARNING

• Do not operate hoist with load, if screw (86) is loose. Failure to tighten screw may cause additional tightening of the adjusting ring, eliminating slip clutch protection.

10. Check adjustment. Normal adjusting range is ± 10%. Repeat process until required adjustment is achieved.
11. When correct adjustment has been obtained install screw (86) and tighten. Apply punch marks to clutch flange and adjusting ring to mark final position of components. Slip clutch capacity will vary depending on ambient temperature and humidity.

Table 10: Slip Clutch Adjustment Loads

Nominal Load (Pu) on hook		Adjusting Overload (Po) Po = Pu + 35%	
lb	**kg**	**lb**	**kg**
275	125	372	169
550	250	742	337
1100	500	1485	675
2200	1000	2970	1350
4400	2000	5940	2700
6600	3000	8710	4050
8800	4000	11880	5400
11000	5000	14850	6750

Pu: This load has to be lifted in warm condition.
Po: It must not be possible to lift this load in warm condition.

Disassembly

The following instructions provide the necessary information to disassemble, inspect and repair the hoist assembly. Parts drawings are provided in the Parts Section to assist in locating components.

If a hoist is being completely disassembled for any reason, follow the order of topics as they are presented. When working on a hoist, it is recommended that the unit be removed from the overhead beam and placed on a clean work bench in a well lighted area. In the process of disassembling the hoist, observe the information provided in the “General Maintenance Instructions” and also:

1. Use a soft metal punch such as brass, when removing metal shafts from housings.
2. The gear lubricant is very messy and should be cleaned off all parts and disposed of in accordance with local procedures.

Q25, Q50 and Q100 Hoists Disassembly

Refer to Dwgs. MHP1004 on page 40 and MHP1122 on page 44. If disassembly of the complete hoist is planned, remove chain from hoist prior to beginning disassembly. Ensure there is no load on the hook. Remove chain stop and end anchor bolt then power hoist in the lowering direction until chain is clear of hoist body.

Top Hook or Hanger Bracket Disassembly

1. Remove nuts (67) and lockwashers (68) from capscrews (65) or (71).
2. Remove capscrews (65) or (71) and lift off eye bolt (69) or top hook assembly (66).
3. On hook mounted units only remove spacers (72).

Gear End Disassembly

1. Position hoist on workbench with the gear cover upward.
2. Remove the four socket head capscrews (88) from gear cover (2).
3. Remove the cover and gasket (3). Do not reuse gasket. Exercise caution during this procedure as the gear case cover will be full of grease. Use a putty knife or similar tool to scrape the excess grease, remaining in the hoist body, into the end cover.

⚠ CAUTION

• Ensure grease is contained as gear cover is removed. Grease is extremely runny and can easily spill.

4. Remove retainer ring (87) from the pinion shaft (77). Pry slip clutch assembly from pinion shaft (77). Remove key (78).
5. If it is necessary to remove pinion shaft (77) it is recommended that the hoist be returned to an authorized Service Repair Center. If removing pinion shaft, first remove retainer ring (79). It is necessary to use special tools for the removal of pinion shaft and bearing (76) from hoist body (64).

Brake End Disassembly

1. Position hoist on workbench with brake cover up. It will be necessary to rest the hoist on blocks to provide a level and stable position. Remove four slotted head capscrews (1) from cover (2).
2. Remove cover and gasket (3) from hoist body (64).
3. Remove retainer (4) from brake pin (9).
4. Press down on brake lever (6) and pull out brake pin (9). Brake lever and brake solenoid plunger (24) can be removed together. Spring (22) and spring guide (23) can also be removed.
5. Lift brass cup disc (11) from motor. Using a thin bladed screwdriver remover the brake discs (16) and (17). Remove brake washer (18) on Model Q25 hoists.

NOTICE

• Models Q50 and Q100 hoists do not use brake washer (18).

6. Remove three socket head capscrews (12) with lockwashers (13). Lift off brake cage (14).
7. Remove two socket head capscrews (25) and lockwashers (26) holding brake solenoid to motor cover (27). Disconnect the three brake solenoid leads from terminal strip (37, 38 or 39) and remove brake solenoid.
8. Remove the two slotted head screws (43) and lockwashers securing the terminal strip to the hoist body. Carefully pull harness to one side allowing access to the limit switch.
9. Loosen the setscrew (44) on the limit lever (45). Pull out limit shaft (42) and remove limit lever (45).
10. Remove two capscrews (43) with lockwashers from limit switch (41).
11. Remove four electrical leads (2 red and 2 black) for limit switch from terminal strip (37, 38 or 39) and remove limit switch (41).
12. Remove the two slotted head screws (43) and lockwashers securing the contactor (63) to the hoist body (64). Lift out the contactor and terminal components (leads still connected).
13. Remove the five transformer leads from the terminal strip (2 orange, 1 black, 1 red and 1 brown). Remove slotted head screws (43) and lockwashers and lift out the transformer (53). If necessary remove nuts (52), lockwashers (51) and capscrews (47) to separate bracket (48) from transformer (53).
14. Disconnect the motor leads from the terminal strip (7 leads including one ground for dual voltage motors). Remove the three socket head capscrews (12) or (21) and lockwashers (13) securing the motor cover (27) to the hoist body. Carefully pry off the motor cover, which may be tight.
15. Back out setscrew (92) from underside of hoist body housing. Hole is located next to the load chain anchor slot.
16. Tap out the rotor assembly (31) or (32) from the gear side. Rotor assembly is complete with the bearings which should not be removed.
17. Remove motor stator (34). This procedure should only be performed by an authorized Service Repair Center. Special tools are required to perform this procedure. Pull motor stator from brake end of hoist body. Remove pin (35).
18. Remove two socket head capscrews (95) and lockwashers (96) which secure the chain guide (97), in the hoist body.
19. Remove retainer ring (54) from hoist body.
20. Remove socket head capscrew (99) and lockwasher from chain stripper (98) and remove chain stripper.
21. Remove retainer ring (75) from load sheave.

⚠ WARNING

• Do not attempt to remove the load sheave until the chain stripper has been removed. Tap out load sheave (56) from brake end complete with bearings (55) and (58). Gear (74) can be removed as load sheave is tapped out.

22. Separate gear (74) from load sheave and remove key (57) and spacer (73).
23. Remove chain guide (97) from hoist body.
24. Remove 'O' rings (36) or (135) from hoist body.
25. If required remove bearings (55) and (58) from load sheave.

Slip Clutch Disassembly

1. Remove screw (86) from adjusting ring (85).
2. Unscrew adjusting ring (85) in a counterclockwise direction to remove. Disassembly should only be performed by an authorized Service Repair Center. Special tools are required to perform this procedure.
3. Remove bellville spring (84) and tap clutch flange (81) from gear (83).
4. Remove clutch lining (82). Do not remove the brass bushing from the center of gear (83).

Q200, Q300 and Q500 Hoists Disassembly

Refer to Dwg. MHP1115 on page 48.

Hanger Disassembly

1. Remove the two socket head capscrews (148) and lockwashers (150) from the hoist body (64).
2. Remove retainer plate (151) and pull out pins (152). Remove hanger bracket (69).

Gear End Disassembly

1. Position hoist on workbench with the gear cover upward.
2. Remove the four socket head capscrews (21) securing the gear cover (2).
3. Remove the cover and gasket (3). Do not reuse gasket. Exercise caution during this procedure as the gear case cover will be full of grease. Use a putty knife or similar tool to scrape the excess grease, remaining in the hoist body, into the gear end cover.

⚠ CAUTION

• Ensure grease is contained as gear cover is removed. Grease is extremely runny and can easily spill.

4. Remove retainer ring (87) and using two screwdrivers, carefully pry the slip clutch assembly loose. The slip clutch assembly is keyed to the pinion shaft (77). If the slip clutch assembly is tight use a three arm bearing puller or equivalent. Remove key (78).
5. Remove the three capscrews (160) and capscrew (163) along with lockwashers (158) which secure the support plate assembly (157) to the hoist body (64). Remove the support plate assembly (157). If the support plate assembly is tight, tap carefully with a plastic mallet to loosen then pry the support plate assembly up with two screwdrivers. Note that three of the four capscrews (160 and 163) are longer than the fourth. The short capscrew locates in the top hole on the support plate.
6. Remove retainer ring (143) and tap pinion shaft (77) and bearing (76) from support plate (157). Remove bearing (76) from pinion shaft (77).
7. Remove retainer ring (162) from pinion shaft (154). Tap pinion shaft (154) through support plate and remove gear (161) and key (155). Remove bearing (156) from pinion shaft.
8. Remove retainer ring (75) from load sheave (56) and pull off gear (74). Remove key (57).

Brake End Disassembly

1. Position hoist on workbench with brake cover up. It will be necessary to rest the hoist on blocks to provide a level and stable position.
2. Remove four socket head screws (1) and separate the cover (2) and gasket (3) from the hoist body (64) at the brake end.
3. Remove retainer (4) from the brake pin (9).
4. Press down on brake lever (6) and pull out brake pin (9). Brake lever and brake solenoid assembly (24) can be removed together. Spring (22) and spring guide (23) can also be removed.
5. Lift off brass cup disc (11).
6. Remove three socket head capscrews (12) with lockwashers (13) and lift off brake cage (14). Remove the brake inner and outer discs (16 and 17). On Q200 hoists only, remove washer (18).
7. Remove the wires from the contactor terminal strip (59) or (63). Do not remove the jumper cables at this time. Remove screws (43) and lockwashers (145) then lift out the contactor.
8. Remove two socket head capscrews (25) and lockwashers (26) holding brake solenoid (24) to motor cover (27). Disconnect the three brake solenoid leads from terminal assembly (37) or (39) and remove brake solenoid.
9. Remove the two slotted screws (140), lockwashers (145) and spacers (141) securing the terminal to the hoist body. Carefully pull harness to one side allowing access to the limit switch.
10. Using a 3 mm Allen wrench, loosen the setscrew (44) on the limit lever (45). Pull out limit shaft (42) and remove limit lever (45).
11. Remove two capscrews (43) with lockwashers (145) from limit switch assembly (41).
12. Remove four electrical leads (2 red and 2 black) for limit switch from terminal assembly (37) or (39) and remove limit switch (41).
13. Remove the two slotted head screws (43) and lockwashers (145) securing the contactor (63) to the hoist body. Lift out the contactor and terminal components (leads still connected).
14. Remove the five transformer leads from the terminal assembly (2 orange, 1 black, 1 red and 1 brown). Remove slotted head screws (43) and lockwashers (145). If necessary remove nuts (52) and capscrews (47) to separate bracket (48) from transformer (53). Remove the transformer.
15. Disconnect the motor leads from the terminal assembly (7 leads including one ground). Remove the two socket head capscrews (21) and lockwashers (13) securing the motor cover (27) to the hoist body. Carefully pry off the motor cover, cover may be tight.
16. Tap on the end of the rotor assembly (32), at the gear end, using a rubber or plastic mallet and remove the rotor assembly from brake end of hoist body. This step should only be performed by an authorized Service Repair Center.
17. Remove the two capscrews (146) and lockwashers (150) holding the chain guide (97), they are installed with a sealant to eliminate vibration noise. Remove the chain stripper (98). To avoid damaging parts the chain stripper (98) must be removed before the load sheave (56).
18. With the aid of retainer ring pliers, remove large retainer ring (54). Drive out load sheave (56) using a steel mallet buffered by a large neoprene or wooden block. Remove load sheave from the brake side.
19. Remove chain guide (97) from the underside of the hoist.
20. Back out setscrew (92) from the underside of hoist body. Remove the motor stator (34). Remove pin (35).
21. Remove 'O' ring (36) and replace with a new one prior to assembly.

Slip Clutch Disassembly

1. Remove screw (86) from adjusting ring (85).
2. Unscrew adjusting ring (85) in a counterclockwise direction to remove. Disassembly should only be performed by an authorized Service Repair Center. Special tools are required to perform this procedure.
3. Remove thrust washer (80) and bellville spring (84). Tap clutch flange (81) from gear (83).
4. Remove clutch lining (82). Do not remove the brass bushing from the center of gear (83).

Cleaning, Inspection and Repair

Use the following procedures to clean, inspect and repair the components of the hoist.

Cleaning

⚠ CAUTION

• Bearings that are loose, worn or rotate in the housing must be replaced. Failure to observe this precaution will result in additional component damage.
• Do not use trichloroethylene to clean parts.

Clean all hoist component parts in solvent (except for electrical components and the brake discs). The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments on the gears and housing. If bushings have been removed it may be necessary to carefully scrape old Loctite® from the bearing bores. Dry each part using low pressure, filtered compressed air.

Inspection

All disassembled parts should be inspected to determine their fitness for continued use. Pay particular attention to the following:

1. Inspect all gears for worn, cracked, or broken teeth.
2. Inspect all bushings for wear, scoring or galling.
3. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
4. Inspect all threaded items and replace those having damaged threads.
5. Check bearings for freeness of rotation and wear. Replace bearings if rotation is rough or bearings are excessively worn.

Repair

Actual repairs are limited to the removal of small burrs and other minor surface imperfections from gears and shafts. Use a fine stone or emery cloth for this work.

1. Worn or damaged parts must be replaced. Refer to the applicable parts listing for specific replacement parts information.
2. Inspect all remaining parts for evidence of damage. Replace or repair any part which is in questionable condition. The cost of the part is often minor in comparison with the cost of redoing the job.
3. Smooth out minor nicks, burrs or galled spots on shafts, bores, pins or bushings.
4. Examine all gear teeth carefully and remove nicks or burrs.
5. Polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
6. Remove all nicks and burrs caused by lockwashers.
7. Replace all seals, 'O' rings and gaskets.

Assembly

Q25, Q50 and Q100 Hoists Assembly

Refer to Dwgs. MHP1004 on page 40 and MHP1122 on page 44.

1. Lubricate and install two new 'O' rings (36) in the grooves provided in the small bores of hoist body (64). Model Q100 hoists use one each of 'O' rings (36) and (135).
2. Press bearings (55) and (58) onto load sheave (56). Install chain guide (97) in the hoist body (64). Threaded hole for chain stripper (98) must be positioned nearest the gear end of the hoist body.
3. Secure the chain guide to the hoist body (64) with two capscrews (95) and lockwashers (96) using a small amount of RTV on the capscrew threads.
4. Partially install load sheave with assembled bearings into hoist body from the brake end. Install spacer (73) on load sheave from the gear end. Install key (57) in load sheave. Position gear (74) on load sheave being careful to align bore and keyway. Gently tap load sheave from the brake side to engage parts. Secure with retainer ring (75). Secure bearing (55) in hoist body with retainer ring (54).
5. Install chain stripper (98) with capscrew (99) and lockwasher (13) or (145).
6. Install the motor stator (34) in the hoist body from the brake end. The stator has two cable bundles, each cable bundle contains three wires. Refer to schematic drawings for correct wiring connections. When installing the stator in the hoist body, ensure the groove in the stator outside diameter is aligned with the groove in the hoist body bore. Install pin (35).
7. Lightly coat setscrew (92) threads with Loctite® 242 and install setscrew in hoist body. Tighten setscrew (92) to clamp stator.
8. Install rotor assembly (31) or (32) through the stator so helical gear end enters first. Carefully tap into position until bearing is seated.
9. Pull motor leads through opening in motor cover (27) and install motor cover in hoist body, tap until seated. Secure motor cover with three lockwashers (13) and socket head capscrews (12) or (21).
10. Install the limit switch (41) in hoist body using two slotted head screws (43) and lockwashers (13) or (145).
11. Ensure bracket (48) is securely attached to transformer with two capscrews (47), lockwashers (51) and nuts (52). Install transformer (53) in hoist body using two slotted head capscrews (43) and lockwashers (13) or (145). Position transformer wires toward the motor stator.
12. Ensure leads between contactor and terminal assembly are connected. Install contactor (59) or (63) in the hoist body and secure with two slotted head screws (43) and lockwashers (13) or (145). The contactor mounts parallel to the rotor assembly. Secure the terminal assembly with two slotted head screws (43) and lockwashers (13) or (145). The terminal strip mounts at right angles to the contactor.
13. Position limit lever (45) on the underside of hoist body and slide limit shaft (42) through the limit lever from the inside of the hoist body. Secure limit lever with setscrew (44). Limit lever should be flush with the surface of the hoist body when installed.
14. Install brake solenoid (24) on motor cover (27) with two socket head capscrews (25) and lockwashers (26).
15. Install brake cage (14) on motor cover and secure in position with three socket head capscrews (12) and lockwashers (13). Position pivot ears on brake cage nearest the brake solenoid.
16. On Model Q25 hoists only, place brake washer (18) in brake cage (14). Ensure radiused edges of washer are nearest the motor.

NOTICE

• Models Q50 and Q100 hoists do not use brake washer (18).

17. Ensure brake discs are clean and dry. Install brake discs (16) and (17) in brake cage (14). Refer to drawing MHP0809 on page 31 for correct sequence. Begin with a outer brake disc (16) and alternate with inner brake disc (17) until they are all used.

⚠ CAUTION

• On models Q25, Q50 and Q100 hoists never install a rotating disc next to the housing.

18. Place brass cup disc (11) with dimple outward on top of last brake disc (16).
19. Thread screw (8) into brake lever (6). Install nut (7) on screw (8).
20. Locate spring (22) and guide (23) in recessed hole in motor cover. Install brake lever (6) with brake solenoid attached and press down to compress the spring while installing brake pin (9). The head of the brake pin must be toward the contactor. Secure brake pin with retainer (4). Adjust brake gap to 0.06 to 0.079 in. (1.5 to 2 mm). Refer to brake adjustment procedure in "MAINTENANCE" section and Dwg. MHP0808 on page 31.
21. Connect leads from motor, limit switch, condenser and transformer to terminal strip (37, 38 or 39). Refer to appropriate schematic drawing.
22. Install brake cover (2) and new gasket (3) on hoist body. Secure in position with four slotted head screws (1).
23. Turn the hoist body assembly over so the gear case end is up.
24. Ensure the pinion shaft (77) has a bearing installed on both ends then press the assembly into the hoist body using special tool. The bearing on the end of the pinion shaft which enters the hoist body first will slide into place. The second bearing (outer) on the pinion shaft may need to be tapped into position. Tap on the pinion shaft until bearings are fully seated.
25. Install retainer ring (79) to hold the assembly in the hoist body.
26. Install key (78) in pinion shaft (77) and slide slip clutch assembly onto pinion shaft (77). Ensure keyway aligns with key. Tap slip clutch assembly into position.
27. Install retainer ring (87).
28. Install new gasket (3) and gear cover (2) on hoist body. Secure cover in position with four socket head capscrews (88).
29. Place the hoist body on its side with the cable connector and the pendant strain relief port visible.
30. With the cable release pointing upward, install cable connector (93) and pendant assembly.

Eye Bolt/Top Hook Assembly

1. Position eye bolt (69) between the lugs on the top of the hoist body. Secure with two capscrews (71), lockwashers (68) and nuts (67).

2. For hook mount hoists, place spacers (72) between the lugs on the top of the hoist body and position the top hook assembly (66) over the lugs.
3. Install two capscrews (65) through holes to locate top hook assembly. Capscrews (65) must pass through the spacers (72).
4. Secure with lockwashers (68) and nuts (67).
5. Verify stops limit full rotation of top hook.
6. Hang hoist and install load chain.

Slip Clutch Assembly

1. Place clutch lining (82) on clutch flange (81).
2. Install clutch flange (81) in gear (83). Install from the recessed side.
3. Install bellville spring (84), concave side toward the gear (83).
4. Install adjusting ring (85) on clutch flange (81). The non threaded area in the bore must be toward the bellville spring. Do not torque adjusting ring at this point.
5. Install slip clutch in hoist. It is recommended that adjustment only be done by an Authorized Service Repair Center using special tools to tighten the adjusting ring. Refer to slip clutch adjustment procedure.

Model Q200, Q300 and Q500 Hoists Assembly

Refer to Dwg. MHP1115 on page 48.

1. Ensure all mating surfaces for the stator, in the chain guide and bearing cavities and 'O' ring (36) diameters are thoroughly clean.
2. Install the chain guide (97) in the hoist body (64). Temporarily secure the chain guide (97) in place with capscrews (146).
3. Install bearings (58) and (55) on load sheave (56). Install load sheave assembly in hoist body (64). Drive the load sheave in from the brake end. The large bearing (55) must go in far enough to allow large retainer ring (54) to be installed.
4. Remove capscrews (146) and install chain stripper (98). Reinstall capscrews and lockwashers (150). Use extreme care because the lockwashers on the capscrews tend to score the surface of the chain guide. The lockwashers act to keep the chain guide from rattling.
5. Install key (57) and tap gear (74) onto the load sheave (56) from the gear side. Ensure that the keyway lines up. The gear has a bevel side around the hole which fits toward the chain pockets. Tap the gear into place to expose the retainer ring groove. Install retainer ring (75).
6. Thoroughly clean the 'O' ring area. Install new 'O' ring (36) using Dow Corning 732 sealant to hold and seal the 'O' ring.
7. Install bearing (156) on pinion shaft (154). Install shaft assembly in support plate (157) with gear (161) and key (155).
8. Install bearings (76) and (147) on pinion shaft (77). Install shaft assembly in support plate (157) and secure with retainer ring (143).
9. Install the support plate assembly and fasten down tightly with four capscrews (160) and (163) and lockwashers (158). One capscrew (163) is shorter than the other three.
10. Turn the unit over and install motor stator (34) followed by the rotor assembly (32). Ensure the stator lines up with the groove for the pin (35). Position the motor and stator leads on the brake side. If the rotor cannot be installed quite far enough loosen the support plate assembly (157), tap the stator in and then retightened the support assembly.
11. Pull the motor leads through the motor cover (27) as the cover is installed. Secure cover with capscrews (21) and lockwashers (13). Install brake cage (14) with capscrews (12) and lockwashers (13).
12. Install washer (18) on model Q200 hoists only, followed by the brake discs (17) inner and (16) outer. The brake discs should be cleaned before they are installed, use a solvent and wipe clean. On Q200, Q300 and Q500 hoists place an outside, two inside, two outside, and then alternate inside and outside discs. Refer to Dwg. MHP0810 on page 31 in the "MAINTENANCE" section.
13. Install cup disc (11) with dimple outward. Install the brake solenoid (24). There are two ways of installing it, one with the rivet head towards the housing and one with the rivet head away. They should always be installed with the rivet head towards the housing and the solenoid plunger.
14. Thread nut (7) onto screw (8) and install in brake lever (6).
15. Locate spring (22) and guide (23) in recessed hole in motor cover. Install brake lever (6) with brake solenoid plunger attached and press down to compress the spring while installing brake pin (9). The head of the brake pin must be toward the contactor. Secure brake pin with retainer (4).
16. Connect leads from motor, limit switch, condenser and transformer to terminal assembly (37) or (39). Refer to schematic drawings provided in the Electrical "Wiring Diagram" section.
17. Adjust the air gap on the brake solenoid to provide 0.060 to 0.080 in. (1.5 to 2 mm) clearance, always push on the solenoid rather than on the arm. By pushing on the arm, you could compress the spring, by pushing on the magnet, the spring is unable to compress. Refer to Dwg. MHP0808 on page 31 in the "MAINTENANCE" section.
18. Install limit switch (41) in the hoist body with screws (43) and lockwashers (145). Ensure the blade is straight on the limit shaft (42). Position the limit lever (45) on the underside of the hoist and install the limit shaft (42) so that it locates the limit lever. If the limit lever (45) is not installed at that point, it will require that the electrical components be removed to get the limit shaft back in. Secure limit lever and limit shaft with setscrew (44).
19. Install the transformer (53) to bracket (48) with capscrews (47), lockwashers (51) and nuts (52). Check that all leads are secure and have not come unsoldered. If leads are loose solder the lead back onto the transformer. Install the transformer with the wires facing towards the top of the hoist. If it is turned around the electrical cover will interfere with the transformer body.
20. Install the contactor assembly (59) or (63) with screws (43) and lockwashers (145). There is only one way to install the contactor assembly in the hoist. Due to the limited available space the use of a magnetic screwdriver may assist this operation. To release the contactor from the rail slip out the small white tabs on the bottom of the contactor. Prior to installing the terminal assembly (37) or (39) decide the best route for the wires. The wires may be routed around either side of the terminal assembly.
21. Install key (78) in pinion shaft (77) and tap slip clutch assembly on pinion shaft (77) on the gear side. Clutch adjusting ring (85) must face outward. Proceed carefully when installing the slip clutch assembly, ensure it is lined up with the key and check the key does not slip as the slip clutch is going on. Tap carefully with a rubber or plastic mallet until the retainer ring groove is showing. Install retainer ring (87).
22. Lubricate gear compartment as recommended in the "LUBRICATION" section.
23. Install gasket (3) and cover (2) on hoist body (64). Secure cover with four socket head capscrews (1).

Hanger Assembly

1. Install hanger bracket (69) between the lugs on hoist body (64). Slide pins (152) through hoist body and hanger. Position hanger to suit hoist configuration. Refer to "INSTALLATION" section.
2. Install retainer plate (151) across the grooves in the two pins.
3. Install the two socket head capscrews (148) and lockwashers (150) to secure the retainer plate to the hoist body. Check that pins are secure and cannot be removed.
4. Hang hoist and install load chain.

Slip Clutch Assembly

1. Place clutch lining (82) on clutch flange (81).
2. Install clutch flange (81) in gear (83). Install from the recessed side.
3. Install bellville spring (84), concave side toward the gear (83). Install thrust washer (80).
4. Install adjusting ring (85) on clutch flange (81). The nonthreaded area in the bore must be toward the bellville spring. Do not torque adjusting ring at this point.
5. After slip clutch has been installed in hoist it will require adjustment. It is recommended that adjustment only be done by an Authorized Service Repair Center using special tools to tighten the adjusting ring. Adjust as follows: Use same procedures as shown for Q25/Q50 hoist.
6. When correct adjustment has been obtained install screw (86) and tighten. Apply punch marks to clutch flange and adjusting ring to mark final adjusted position of components.

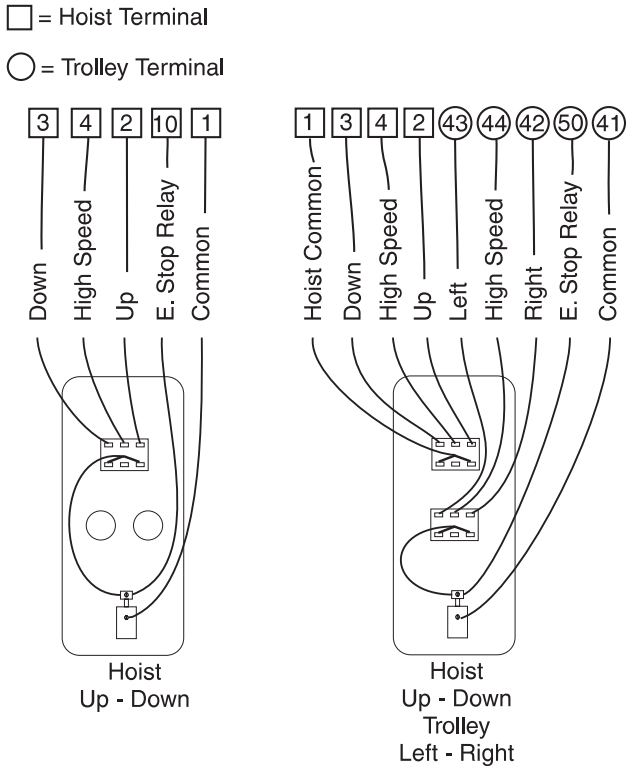
Control Pendant Disassembly

Refer to Dwg. MHP0853 on page 54.
Do not disassemble any component further than necessary to accomplish the repair. Unnecessary disassembly can cause damage to a good part.

⚠WARNING

• Never perform maintenance on a hoist system while is supporting a load. Disconnect power from hoist system.
• Mark area to inform personnel hoist system is being serviced.

1. Remove six screws (253) from cover (254) and remove cover.
2. Label all wires and note the terminals they are connected to.
3. Loosen lower screw in Emergency Stop switch (273) and remove wire.
4. Cut wires off close to terminal connections on switch (257).
5. Remove screw (259) and sleeve (261).
6. Remove screws (259) and clamp (260).
7. Pull pendant cap (251) off pendant body (263). The body can now be taken to a clean work bench for further disassembly.
8. Carefully cut the nylon tie (250) and remove pendant cap (251) from pendant cord.
9. Loosen top screw in Emergency Stop switch (273) and remove wires.
10. Remove locking ring (266) on Emergency Stop button (274) and lift out Emergency Stop switch (273) and switch bracket (277). Push out Emergency Stop button (274).
11. Remove screws (272), lockwashers (275) and nut (276) separate Emergency Stop switch (273) from bracket (277).
12. Remove two screws (256) holding switch to pendant body (263).



(Dwg. MHP1119)

13. Carefully lift out switch (257) and then remove spring plate (258).
14. Remove locking rings (266) and push out buttons (268 and 269).

Repair

Replace any electrical components that have tested faulty or are burnt. Replace any buttons that are not functioning. Replace any components that are cracked or worn.

Control Pendant Assembly

1. Place button (269, white background, black arrow) into position on right side of pendant body (263). Ensuring that arrow is pointing Up (matching direction on body). Attach locking ring (266) and fasten, make sure that flat side of ring is against body.
2. Place button ((268), black background, white arrow) into position on left side of pendant body (263). Ensuring that arrow is facing down (matching direction on body). Attach locking ring (266) and fasten, make sure that flat side of ring is against body.
3. Place spring plate (258) into body (263) with 'V' end between screw holes and center tang facing up.
4. Place switch (257) onto spring plate (258) and push down while aligning screw holes. Insert screws (256) and tighten.
5. Solder wires back onto the appropriate terminals as noted in step 2 disassembly.
6. Place screws (272) into Emergency Stop switch (273) and insert into bracket (277). Install lockwashers (275) and nuts (276), tighten nuts.
7. Place Emergency Stop button (274) into pendant body (263).
8. Slide locking ring (266) into switch bracket and place over Emergency Stop button (274), tighten locking ring.
9. Connect wires as marked in step 2 disassembly.
   Note: Electrical leads to emergency button are held by screws. All other leads are soldered.

Control Pendant Testing

1. Turn on power to hoist system and observe.
2. Depress Up button on pendant and observe movement of load hook.
3. Depress Down button on pendant and observe movement of load hook.
4. Depress Right movement button on pendant and observe trolley movement.
5. Depress Left movement button on pendant and observe trolley movement.
6. Depress Emergency Stop button. Depress each of the other control buttons one at a time and observe. No hook or trolley movement should be possible. Release Emergency Stop button by twisting.
   * If hook or trolley movement does not correspond to button direction recheck all electrical connections.

Handi-Pendant (optional feature)

⚠ CAUTION

• A swinging load can cause injury and/or damage to property. Do not allow load to swing freely.

Disassembly

Do not disassemble any component further than necessary to accomplish the repair. Unnecessary disassembly can cause damage to a good part.

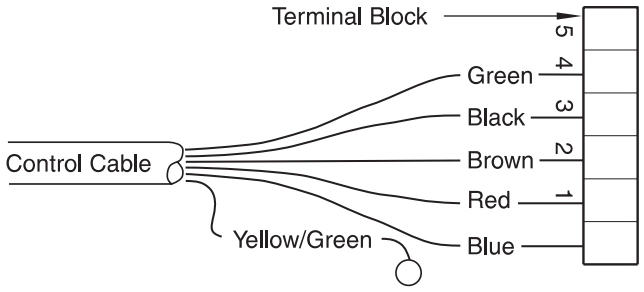
⚠ WARNING

• Never perform maintenance on a hoist system while is supporting a load. Disconnect power from hoist system.

Disconnecting Handi-Pendant from Load Chain

Refer to Dwg. MHP0928 on page 56.

1. Remove screws (318) from cover (319) and remove cover and gasket (320).
2. Disconnect the wires from terminal block (323), on the side going to control cable (316). Refer to Dwg. MHP1067 on page 38.



(Dwg. MHP1067)

3. Remove screw and separate ground (earth) wire and ground (earth) tab.
4. Remove capscrews (303) and (305) and lockwashers (304) from switch cover (302). Remove switch cover and gasket (310), let them hang by switch assembly (257) wires.
5. Loosen control cable clamp and pull free the control cable wires.
6. Loosen connector cap (315) and pull it along with control cable out of connector body. Keep the plastic washer and rubber grommet with the connector cap (315).
7. Tie or tape the bottom few coils of control cable (316) to allow access to the chain end connector.
8. While supporting the pendant and hook assembly, remove screws (311) and lockwashers (313) which secure the chain end connector to the pendant.

You may now take the pendant assembly to a clean work bench for further disassembly.

Main Body Disassembly

1. Remove capscrews (311) and lockwashers (313) from the hook assembly, remove hook (113).
2. Disconnect the switch assembly (257, non-emergency stop side) wires from terminal block (323).
3. Remove gasket (310) from cover (302).
4. Remove screws (256) from switch assembly (257) and switch cover (302).
5. Remove switch assembly (257) and spring plate (258).
6. Loosen setscrew (308).
7. Pull control lever (300) out of cover (302) as soon as rocker block (306) is free of lever shaft remove it.
8. Press out bushings (301).
9. Disconnect the switch assembly (257), (emergency stop side) wires from terminal block (323).
10. Remove capscrews (303) and (305) and lockwashers (304). Take off emergency stop cover (325) and gasket (310).
11. Remove screws (256) from switch assembly (257) and emergency stop cover (325).
12. Remove emergency stop cover (325) and spring plate (258).
13. Refer to steps 6 through 8 for switch housing disassembly.
14. Remove screws (328), take off cover (327) and gasket (326).
15. Remove locking ring (266). While removing locking ring, pull emergency stop button assembly (274) when locking ring is free, emergency stop button and switch bracket assembly will also be free.
16. Loosen terminal screws on switch (273) and remove both wires.
17. Remove screws (272), nuts (276) and lockwashers (275) and separate switch (273) from switch bracket (277).

Emergency Stop Button Disassembly

It is not recommended that the Emergency Stop button be disassembled. If problems are apparent replace the Emergency Stop button.

Repair

Replace any electrical components that have tested faulty or are burnt. Replace any components that are cracked or broken.

Assembly

Control Lever Assembly

1. Using a suitable spacer, press one bushing (301) into switch cover (302) until 1/16 inch (2 mm) protrudes on the inside. Press the other bushing (301) in until it is 1/16 inch (2 mm) above the outside surface.

2. Insert rocker block (306) into slot in switch cover, slide control lever (300) into switch cover (flat portion of shaft facing up) and into rocker block. Tighten setscrew (308).

Switch Assembly

1. Place spring plate (258) onto switch cover (302) with tang facing up and away from control lever.
2. Place switch assembly (257) onto spring plate (258) and fasten with screws (256).

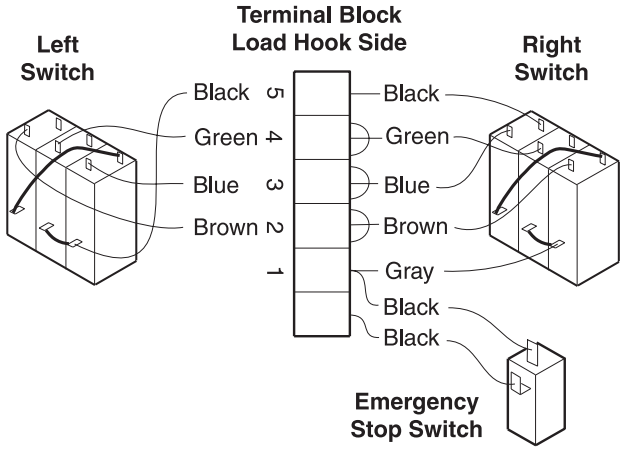
Emergency Stop Switch Cover Assembly

1. Refer to Control Lever Assembly and Switch Assembly above.
2. Fasten switch (273) to bracket (277) using screws (272), lockwashers (275) and nuts (276).
3. Insert emergency stop button assembly (274) into cover (327).
4. Place locking ring (266) into bracket (277), place over emergency stop button and tighten (terminal connections facing the longer edge of the cover).
5. Attach two black wires (7 inches (178 mm) long) to the terminals of switch (273).
6. Place gasket (326) on emergency stop cover (325).
7. Insert wires through emergency stop cover (325) and place cover (327) into position.
8. Insert screws (328) and tighten.

Main Body Assembly

Starting with the left side. As you hold the pendant body (314) the strain relief should be on the left side and the non tapered connector should be facing up.

1. Place gasket (310) onto switch cover (302).
2. Insert the switch assembly (257) wires through the hole in the terminal block support (and under terminal block) in the pendant body (314). Except for the black wire.
3. Place the switch cover assembly onto the pendant body with the control lever (300) between the body shields.
4. Insert one screw (303) and lockwasher (304) and finger tighten (this will be removed later).
5. Insert black wire into terminal block (323) position 5 and tighten. Refer Dwg MHP1068 on page 39.
6. Push the other wires up through rear access hole (up and over the terminal block).



(Dwg. MHP1068)

7. Place gasket (310) onto emergency stop cover (325).
8. Connect the two emergency stop wires and one gray switch wire to the terminal block (323). Refer to Dwg MHP1068 on page 39.
9. Connect the two brown wires to the terminal block.
10. Connect the two blue wires to the terminal block.
11. Connect the two green wires to the terminal block.
12. Connect the black wire from the switch to the terminal block.
13. Place the emergency stop cover assembly onto the pendant body with control lever (300) between the body shields. Ensure all wires are inside of body.
14. Insert screws (305) and lockwashers (304) through emergency stop cover assembly (325) and into pendant body (314) and tighten.

Attaching Load Chain and Hook

1. Insert pendant connector (333) into top socket on pendant body. Insert capscrews (311) and lockwashers (313) and tighten.
2. Insert hook shank into bottom socket on pendant body. Insert capscrews (311) and lockwashers (313) and tighten.

Attaching Control Cable

1. Remove capscrew (303) and lockwasher (304), carefully remove switch cover (302).
2. Push control cable (316) wire ends through connector until about 3/4 inch (19 mm) of cable covering is exposed.
3. Slide clamp over wires and onto cable cover about 1/2 inch (13 mm) and tighten.
4. Pull control cable until clamp is touching pendant body (314). Push connector cap (315) together and tighten.
5. Insert screw through ground (earth) tab, ground (earth) wire eyelet and into pendant body then tighten.
6. Connect control cable wires to terminal block (323). Refer to Dwg MHP1067 on page 38.
7. Place cover assembly (335) onto pendant body with lever (300) between the body shields. Ensure that all wires are inside of body.
8. Insert capscrews (305) and lockwashers (304) into the holes on the lever side. Insert capscrews (303) and lockwashers (304) into the other side and tighten.
9. Place gasket (320) over rear access hole followed by cover (319).
10. Insert screws (318) and tighten.

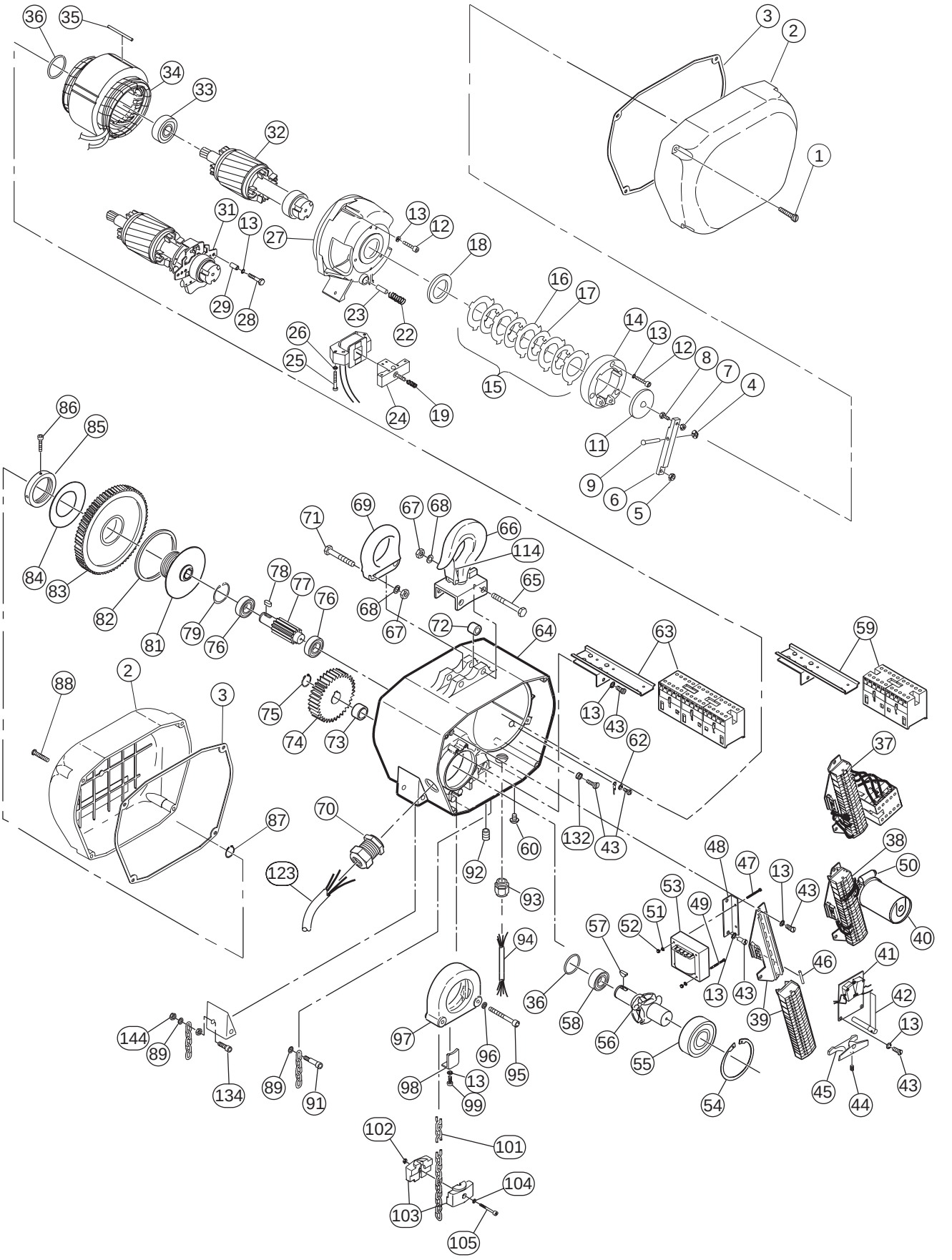
Testing Pendant

1. Turn power back on and observe.
2. With no load and using only right side lever. Operate pendant up and down in low speed and then, if equipped, high speed operation. Observe for erratic operation or no response to controls.
3. Repeat step 2 for left lever.
4. With a load of 125% hoist capacity repeat steps 2 and 3. If hook movement does not correspond to lever direction, recheck all electrical connections.

Load Test

Prior to initial use, all new, extensively repaired, or altered hoists shall be load tested by or under the direction of a person trained in safety and the operation of this hoist, and a written report furnished confirming the rating of the hoist. Dynamically load test hoist to 125% of its rated capacity in accordance with ASME B30.16 standards. Testing to more than 125% is necessary to set slip clutch and may also be necessary to comply with standards and regulations set forth in areas outside of the USA.

Q25 AND Q50 HOIST ASSEMBLY PARTS DRAWING



(Dwg. MHP1004)

Q25 AND Q50 HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER	
			Q25	Q50
1	Screw	4	71277669	
2	Cover	2	71310890	
• 3	Gasket	2	71275267	
• 4	Retainer	1	71278360	
5	Nut	1	71277842	
6	Brake Lever	1	71277982	
7	Nut	1	71278063	
8	Screw	2	71277743	
9	Brake Pin	1	71277941	
• 11	Cup Disc	1	71275242	
12	Capscrew	6	71277925	
13	Lockwasher	16	71278717	
14	Brake Cage	1	71275051	
15	Brake Disc Set (Incl's items 16 and 17)	1	71275069	71275077
16	Brake Disc (Outer)	5/6	Order Set item 15	
17	Brake Disc (Inner)	4/5		
18	Brake Washer	1	71277602	---
• 19	Spring	1	71278287	
• 22	Spring	1	71278451	
23	Spring Guide	1	71278097	
• 24	Brake Solenoid Assembly (Incl's 5, 19, 23 and 23)	See Descriptions		
	110v	1	71275085	
	575v		71296875	
	230/460v		71275101	
25	Capscrew	2	71277776	
26	Lockwasher	2	71277628	
27	Motor Cover	1	71278014	
28	Capscrew	1	71277966	
29	Spacer	1	71278352	
	Rotor Assembly (Incl's item 33)	See Descriptions		
31	1 ph, NS, L=50	1	71275283	
32	3 ph, ND, L=90 mm		71275309	
	3 ph, HD, L=90 mm		---	71275325
	3 ph, HS, L=50 mm		71275317	
	3 ph, NS, L=50 mm		71300727	
33	Bearing	1	71278162	

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER
			Q25 / Q50
34	Motor Stator	See Descriptions	
	1 sp, 1 ph, 110v, NS L=50 mm	1	71275366
	1 sp, 1 ph, 220v, NS L=50 mm		71275408
	1 sp, 3 ph, 230/460v, NS, HS L=50 mm		71275358
	1 sp, 3 ph, 575v, NS, HS, L=50 mm		71275390
	2 sp, 3 ph, 230v, ND, HD, L=90 mm		71275382
	2 sp, 3 ph, 460v, ND, HD, L=90 mm		71275374
	2 sp, 3 ph, 575v, ND, HD, L=90 mm		71275341
35	Pin	1	71278022
• 36	'O' Ring	2	71277719
37	Terminal Assembly (110v) 3 ph w/ E. Stop	1	71273379
	Terminal Assembly (42v) 3 ph w/ E. Stop		71273361
38	Terminal Assembly (1 ph, 220v) w/ condenser	1	71278345
	Terminal Assembly (1 ph, 110v) w/ condenser		71278386
39	Terminal Assembly 3 ph w/o E. Stop	1	71278378
40	Condenser	See Descriptions	
	1 ph, 110/115v 50/60 hz	1	04556379
	1 ph, 220/230v 50/60 hz		71275150
41	Limit Switch Assembly	1	71277735
• 42	Limit Shaft	1	71275333
43	Screw	10	71278493
44	Setscrew	1	71278121
45	Limit Lever Assembly (Incl's item 44)	1	71278113
• 46	Fuse	1	71275259
47	Capscrew	2	71278337
48	Bracket	1	71277784
49	Capscrew	2	71278402
50	Clip	1	71278089
51	Lockwasher	4	71277750

• Recommended Spare

Q25 AND Q50 HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER	
			Q25	Q50
52	Nut	4	71280663	
53	Transformer Assembly (Incl's items 47, 49, 51 and 52)	See Descriptions		
	110v (575v)	1	71273536	
	110v (230/460v)		71273528	
	42v (230/460v)		71296883	
	42v (110v)		71275465	
	42v (575v)		71296891	
54	Retainer Ring	1	71278790	
55	Bearing	1	71278048	
56	Load Sheave	1	71275135	71275143
57	Key	1	71278691	
58	Bearing	1	71278709	
59	Contactor Assembly	See Descriptions		
	1 sp, 110v, 3 ph	1	71273502	
	1 sp, 42v, 3 ph		71275226	
60	Plug	1	04614012	
62	Eyelet	1	71277651	
63	Contactor Assembly	See Descriptions		
	2 sp, 3 ph, 110v	1	71282495	
	2 sp, 3 ph, 42v		71275200	
	2 sp, 1 ph, 42v, w/ E. Stop		71290696	
64	Hoist Body	1	71278725	
65	Capscrew	2	71278030	
66	Top Hook Assembly (Incl's items 65, 67, 68, 72 and 114)	1	71272363	71272371
67	Nut	2	71277693	
68	Lockwasher	2	71277883	
69	Top Hanger Bracket Assembly (Incl's items 67, 68 and 71)	1	71278782	
70	Cable Connector, Power	1	71293559	
71	Capscrew	2	71277818	
72	Spacer	2	71278147	
73	Spacer	1	71278626	
74	Gear	1	71278675	
75	Retainer Ring	1	71277917	
76	Bearing	2	71278600	
77	Pinion Shaft	1	71277974	

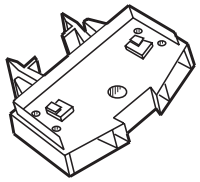
ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER	
			Q25	Q50
78	Key	1	71277701	
79	Retainer Ring	1	71278618	
81	Clutch Flange	1	71277909	
• 82	Clutch Lining	1	71278733	
83	Gear (150 mm OD) HD, HS	1	---	71278758
	Gear (144 mm OD) NS, ND		71278766	
• 84	Spring	1	71277859	
85	Adjusting Ring	1	71277867	
86	Screw	1	71277875	
87	Retainer Ring	1	71277792	
88	Capscrew	4	71278246	
89	Lockwasher	1	71278717	71277685
91	Shoulder Bolt	1	---	71275044
92	Setscrew	1	71277800	
93	Cable Connector, Pendant	1	71278410	
94	Pendant Control Cable	1	71307086	
95	Capscrew	2	71279897	
96	Lockwasher	2	71277685	
97	Chain Guide	1	71275119	71275127
98	Chain Stripper	1	71275424	71275416
99	Capscrew	1	71278485	
101	Load Chain	As Req'd	71268429	71268437
102	Nut	1	71277958	71278063
103	Chain Stopper Assembly (Incl's items 102, 104, and 105)	1	71273320	71282446
104	Lockwasher	1	71277628	71278717
105	Capscrew	1	71277776	71278139
• 114	Hook Latch Kit	1	71275275	
123	Power Cable	1	71288427	
132	Flatwasher	1	71278055	
134	Capscrew	1	71275036	
136	Terminal, 2 wire	1	71278311	
137	Terminal, 4 wire	1	71278303	
138	Terminal, ground (green-yellow)	1	71278295	
139	Terminal End Plate	2	71278089	
144	Nut	1	71278063	

• Recommended Spare

ADDITIONAL PART INFORMATION (ALL MODELS)

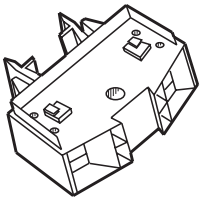
Terminal Assemblies may be constructed from the individual components shown.

Item 136



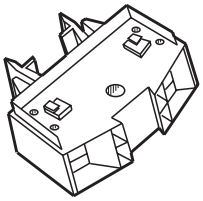
Terminal
2 Wire

Item 137



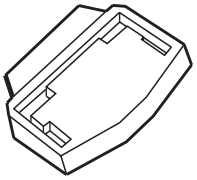
Terminal
4 Wire

Item 138



Terminal
Ground/Earth
Green/Yellow

Item 139

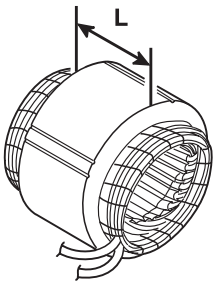


Terminal
End Cap

(Dwg. MHP1138)

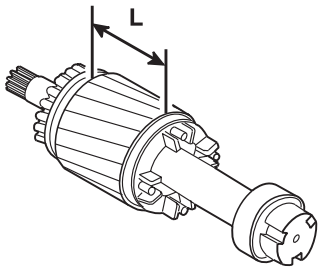
Motor Stator and Rotor Assembly part descriptions may include a reference 'L' dimension.

Item 34



Motor
Stator

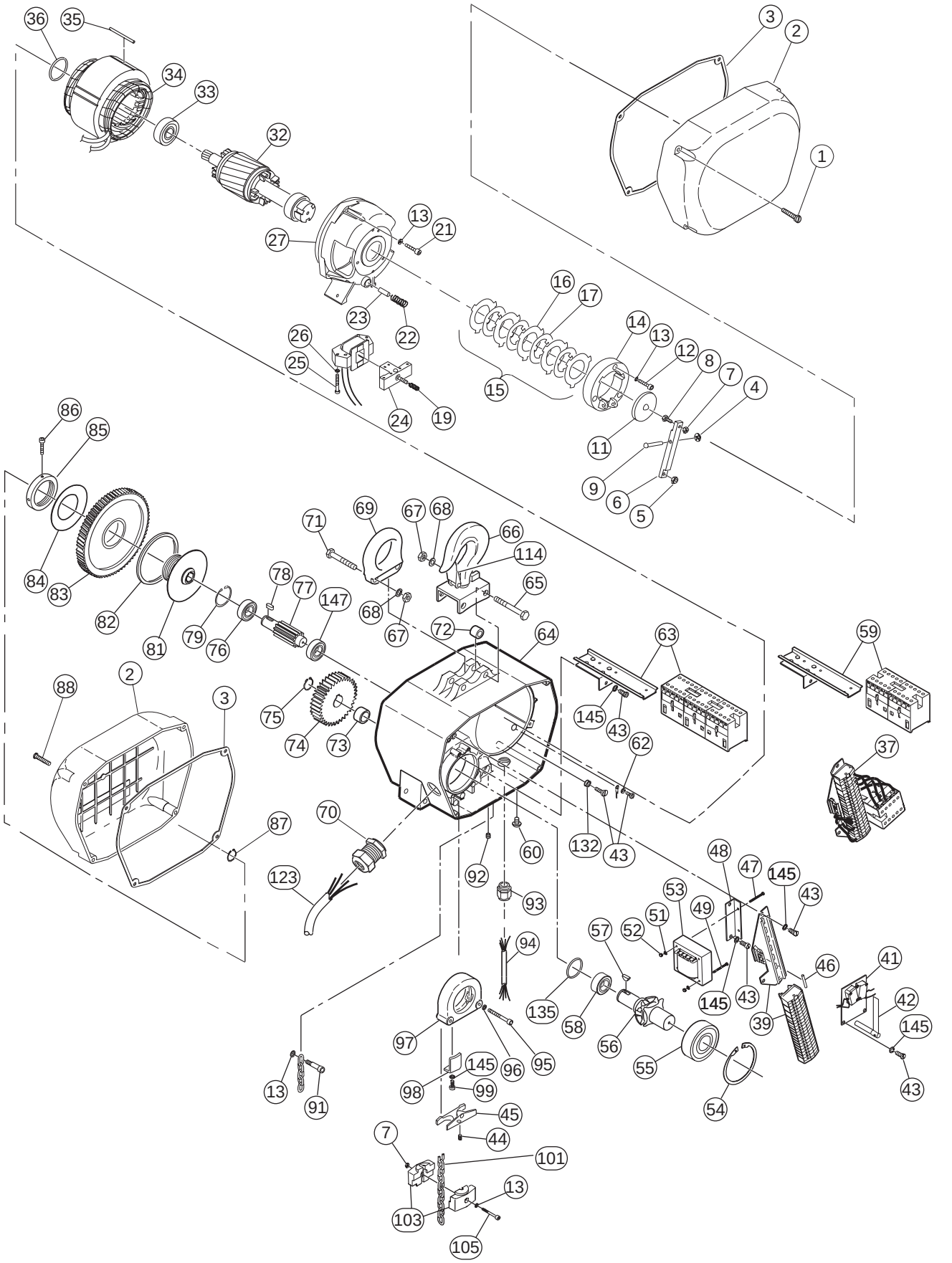
Item 32



Rotor
Assembly

(Dwg. MHP1139)

Q100 HOIST ASSEMBLY PARTS DRAWING



(Dwg. MHP1122)

Q100 HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER Q100
1	Capscrew	4	71279574
2	Cover	2	71310908
• 3	Gasket	2	71275622
• 4	Retainer	1	71279525
5	Nut	1	71277842
6	Brake Lever	1	71279491
7	Nut	2	71278261
8	Screw	1	71279517
9	Brake Pin	1	71279533
• 11	Cup Disc	1	71275606
12	Capscrew	3	71279640
13	Lockwasher	8	71277685
14	Brake Cage	1	71275507
15	Brake Disc Set (Incl's items 16 and 17)	1	71275515
16	Brake Disc (outer)	8	Order Set Item 15
17	Brake Disc (inner)	7	
• 19	Spring	1	71278287
21	Capscrew	3	71279285
• 22	Spring	1	71278451
23	Spring Guide	1	71278097
24	Brake Solenoid Assembly (Incl's items 5, 19, 22 and 23)	See Descriptions	
	230/460v	1	71275101
	575v		71296875
25	Capscrew	2	71277776
26	Lockwasher	2	71277628
27	Motor Cover	1	71279467
32	Rotor Assembly (Incl's item 33)	See Descriptions	
	L=50 mm, NS	1	71275671
	L=60 mm, HS		71275705
	L=100 mm, ND		71275689
	L=90 mm, HD		71275663
33	Bearing	1	71279947
34	Motor Stator	See Descriptions	
	L=50 mm, 1 sp, 230/460v, NS	1	71275739
	L=50 mm, 1 sp, 575v, NS		71275721
	L=60 mm 1 sp, 230/460v, HS		71296901
	L=60 mm, 1 sp, 575v, HS		71296917
	L=100 m, 2 sp, 230v, ND		71275713
	L=100 mm, 2 sp, 460v, ND		71275754
	L=100 mm, 2 sp, 575v, ND		71275762
	L=90 mm, 2 sp, 230v, HD		71296925
	L=90 mm, 2 sp, 460v, HD		71296933
	L=90 mm, 2 sp, 575v, HD		71296941
35	Pin	1	71280150
• 36	'O' Ring	1	71279459

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER Q100
37	Terminal Assembly	See Descriptions	
	3 ph, w/ E. Stop. (42v)	1	71273387
	3 ph, w/ E. Stop. (110v)		71273395
39	Terminal Assembly w/o E. Stop	1	71279996
41	Limit Switch Assembly	1	71277735
42	Limit Shaft	1	71275697
43	Screw	10	71278493
44	Setscrew	1	71278121
45	Limit Lever Assy. (Incl's item 44)	1	71275648
• 46	Fuse	1	71275259
47	Capscrew	2	71278337
48	Bracket	1	71277784
49	Capscrew	2	71278402
51	Lockwasher	4	71277750
52	Nut	4	71280663
53	Transformer Assembly (Incl's items 47, 49, 51 and 52)	See Descriptions	
	230/460 - 42v	1	71296883
	575 - 42v		71296891
	230/460 - 110v		71273528
	575 - 110v		71273536
54	Retainer Ring	1	71279624
55	Bearing	1	71279616
56	Load Sheave	1	71275556
57	Key	1	71279608
58	Bearing	1	71279590
59	Contactor Assembly	See Descriptions	
	1 sp, 42v control	1	71296958
	1 sp, 110v control		71273544
60	Plug	1	04614012
62	Eyelet	1	71277651
63	Contactor Assembly	See Descriptions	
	(2 sp, 42v control) 3 ph	1	71296966
	(2 sp, 110v control) 3 ph		71273551
64	Hoist Body	1	71279392
65	Capscrew	2	71279913
66	Top Hook Assembly (Incl's items 65, 67, 68 and 72)	1	71272389
67	Nut	2	71279426
68	Lockwasher	2	71279419
69	Top Hanger Bracket (Incl's items 67, 68 and 71)	1	71279954
70	Cable Connector (Power)	1	71293559
71	Capscrew	2	71279400
72	Spacer	2	71279905
73	Spacer	1	71279566
74	Gear	1	71279558
75	Retainer Ring	1	71279541

Q100 HOIST ASSEMBLY PARTS LIST

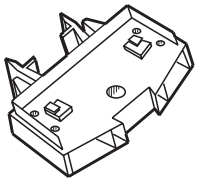
ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER Q100
76	Bearing	1	71279350
77	Pinion Shaft	1	71279376
78	Key	1	71279368
79	Retainer Ring	1	71284434
81	Clutch Flange	1	71279335
• 82	Clutch Lining	1	71279327
83	Gear	1	71279319
• 84	Spring	1	71279301
85	Adjusting Ring	1	71277867
86	Screw	1	71277875
87	Retainer Ring	1	71277917
88	Capscrew	4	71279285
91	Shoulder Bolt	1	71275499
92	Setscrew	1	71279434
93	Cable Connector (Pendant)	1	71278410
94	Pendant Control Cable	1	71307086
95	Capscrew	2	71279715
96	Lockwasher	2	71277883
97	Chain Guide	1	71275523
98	Chain Stripper	1	71275812
99	Capscrew	1	71278253
101	Load Chain	As Req'd	71268445
103	Chain Stopper Assembly (Incl's items 7, 13 and 105)	1	71273346
105	Capscrew	1	71279921
• 114	Hook Latch Kit	1	71275655
123	Power Cable	1	71288427
132	Flatwasher	1	71278055
• 135	'O' Ring	1	71279582
136	Terminal, 2 wire	1	71278311
137	Terminal, 4 wire	1	71278303
138	Terminal, ground (green-yellow)	1	71278295
139	Terminal End Plate	2	71278584
145	Lockwasher	11	71278717
147	Bearing	1	71279384

• Recommended Spare

ADDITIONAL PART INFORMATION (ALL MODELS)

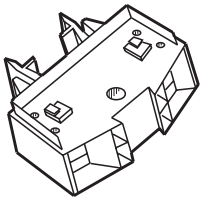
Terminal Assemblies may be constructed from the individual components shown.

Item 136



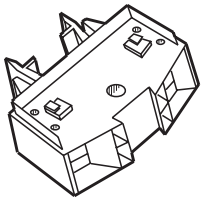
Terminal
2 Wire

Item 137



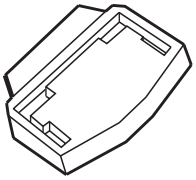
Terminal
4 Wire

Item 138



Terminal
Ground/Earth
Green/Yellow

Item 139

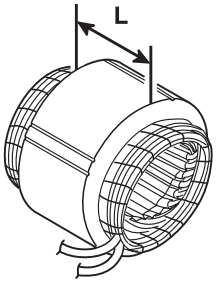


Terminal
End Cap

(Dwg. MHP1138)

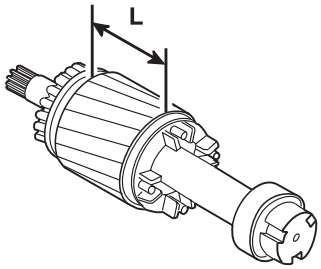
Motor Stator and Rotor Assembly part descriptions may include a reference 'L' dimension.

Item 34



Motor
Stator

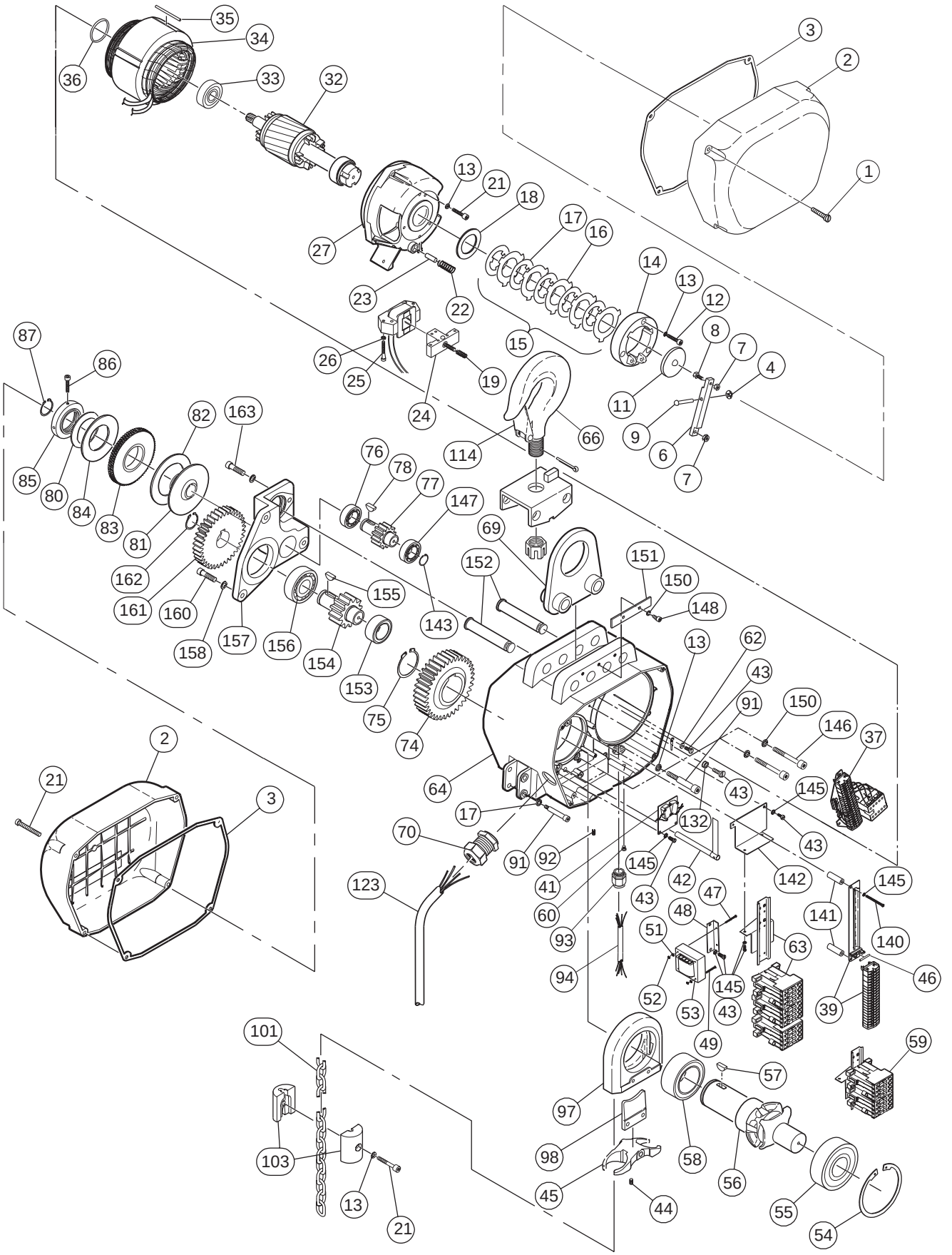
Item 32



Rotor
Assembly

(Dwg. MHP1139)

Q200, Q300 AND Q500 HOIST ASSEMBLY PARTS DRAWING



(Dwg. MHP1115)

Q200, Q300 AND Q500 HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER		
			Q200	Q300	Q500
1	Capscrew	4	71279574		
2	Cover	2	71310916		
• 3	Gasket	2	71276000		
• 4	Retainer	1	71279525		
6	Brake Lever	1	71280192		
7	Nut	2	71277842		
8	Screw	1	71280143		
9	Brake Pin	1	71279533		
• 11	Cup Disc	1	71275606		
12	Capscrew	3	71279640		
13	Lockwasher	9	71277685		
14	Brake Cage	1	71275507		
• 15	Brake Disc Set (Incl's items 16 and 17)	1	71275515	71310981	
16	Brake Disc (outer)	8/9	Order Set Item 15		
17	Brake Disc (inner)	7/8	Order Set Item 15		
18	Brake Washer	1	71280184	---	
• 19	Spring	1	71278287		
21	Capscrew	8	71279285		
22	Spring	1	71278451		
23	Spring Guide	1	71278097		
24	Brake Solenoid Assy. (Incl's items 7, 19, 22 and 23)	See Descriptions			
	230/460v 60Hz	1	71275101		
	575v 60Hz		71296875		
25	Capscrew	2	71277776		
26	Lockwasher	2	71277628		
27	Motor Cover	1	71280168		
32	Rotor Assy. (Incl's item 33)	See Descriptions			
	L=60 mm, 1 sp, NS	1	71276067		
	L=90 mm, 2 sp, ND		71276042		
33	Bearing	1	71279947		
34	Motor Stator	See Descriptions			
	L=60 mm, 230/460v, NS	1	71296901		
	L=60 mm, 575v, NS		71296917		
	L=90 mm, 230v, ND		71296925		
	L=90 mm, 460v, ND		71296933		
	L=90 mm, 575v, ND		71296941		
35	Pin	1	71280150		
• 36	'O' Ring	1	71279459		
37	Terminal Assembly	See Descriptions			
	w/ E. Stop, 42v control	1	71273403		
	w/ E. Stop, 110v control		71273411		
39	Terminal Assy. w/o E. Stop	1	71279996		
41	Limit Switch Assembly	1	71277735		
• 42	Limit Shaft	1	71276059		
43	Screw	6	71278493		
44	Setscrew	1	71278121		

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER		
			Q200	Q300	Q500
45	Limit Lever Assembly (Incl's item 44)	1	71276018		
• 46	Fuse	1	71275259		
47	Capscrew	2	71278337		
48	Bracket	1	71277784		
49	Capscrew	2	71278402		
51	Lockwasher	4	71277750		
52	Nut	4	71280663		
53	Transformer Assy. (Incl's items 47, 49, 51 and 52)	See Descriptions			
	230/460 - 42v	1	71296883		
	575 - 42v		71296891		
	230/460 - 110v		71273528		
	575 - 110v		71273536		
54	Retainer Ring	1	71280267		
55	Bearing	1	71280259		
56	Load Sheave	1	71275929	71310932	
57	Key	1	71280204		
58	Bearing	1	71280234		
59	Contactor Assembly	See Descriptions			
	1 sp, 42v control	1	71296958		
	1 sp, 110v control		71273544		
60	Plug	1	04614012		
62	Eyelet	1	71277651		
63	Contactor Assembly	See Descriptions			
	2 sp, 42v control	1	71296966		
	2 sp, 110v control		71273551		
64	Hoist Body	1	71280424		
66	Top Hook Assembly (Incl's items 165, 166, 167 and 113)	1	71272397		
69	Top Hanger Bracket	1	71272801		
70	Cable Connector, Power	1	71293559		
74	Gear	1	71280226		04660684
75	Retainer Ring	1	71280218		
76	Bearing	1	71280077		
77	Pinion Shaft	1	71280085		04660676
78	Key	1	71278691		
80	Thrust Washer	1	71280028		
81	Clutch Flange	1	71280069		
• 82	Clutch Lining	1	71279327		
83	Gear	1	71280044		
• 84	Spring	1	71280036		
85	Adjusting Ring	1	71310924		
86	Screw	1	71277875		
87	Retainer Ring	1	71280051		
91	Shoulder Bolt	1	71276034		
92	Setscrew	1	71280143		
•	Recommended Spare				

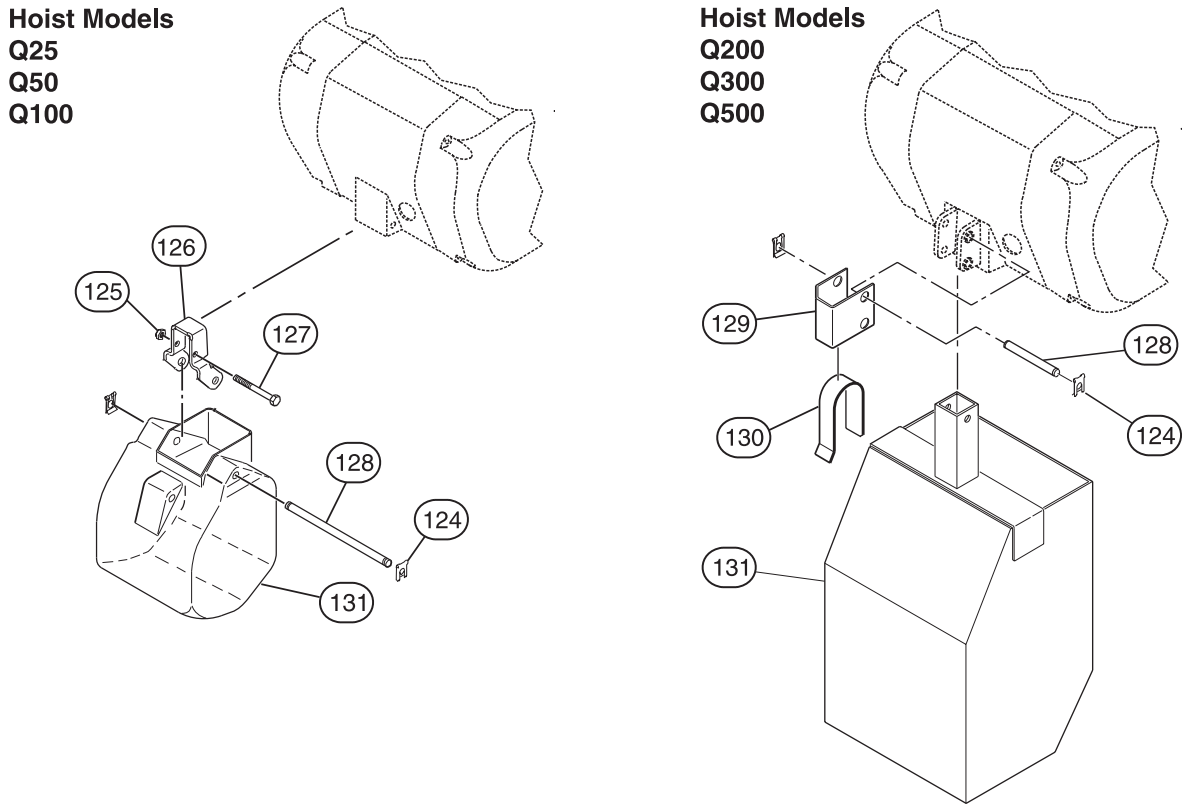
Q200, Q300 AND Q500 HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER		
			Q200	Q300	Q500
93	Cable Connector, Pendant	1	71278410		
94	Pendant Control Cable	1	71307086		
97	Chain Guide	1	71275903	71275911	
98	Chain Stripper	1	71276125		
101	Load Chain	As Req'd	71268452	71268460	
103	Chain Stopper Assembly (Incl's items 1 and 13)	1	71273353		
•114	Hook Latch Kit	1	71275655		
123	Power Cable	1	71288435		
132	Flatwasher	1	71278055		
133	Screw	1	71278493		
136	Terminal, 2 wire	1	71278311		
137	Terminal, 4 wire	1	71278303		
138	Terminal, ground (g-y)	1	71278295		
139	Terminal End Plate	2	71278584		
140	Capscrew	2	71280473		
141	Spacer	2	71280481		
142	Bracket	1	71280457		
143	Retainer Ring	1	71285043		
145	Lockwasher	9	71278717		

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER		
			Q200	Q300	Q500
146	Capscrew	2	71280499		
147	Bearing	1	71280093		
148	Capscrew	2	71280119		
150	Lockwasher	4	71277685		
151	Retainer Plate	1	71280127		
152	Pin	2	71280135		
153	Bearing	1	71280416		
154	Pinion Shaft	1	71280408		04660700
155	Key	1	71280390		
156	Bearing	1	71280382		
157	Support Plate	1	71280358		
158	Lockwasher	4	71277883		
160	Capscrew	3	71310940		
161	Gear	1	71280374		04660692
162	Retainer Ring	1	71280366		
163	Capscrew	1	71310957		
165	Pin	1	71280689		
166	Nut	1	71280655		
167	Hook Bracket	1	71280648		
168	Spacer	2	71280465		

• Recommended Spare

CHAIN CONTAINER ASSEMBLY DRAWING AND PARTS LIST (OPTIONAL)



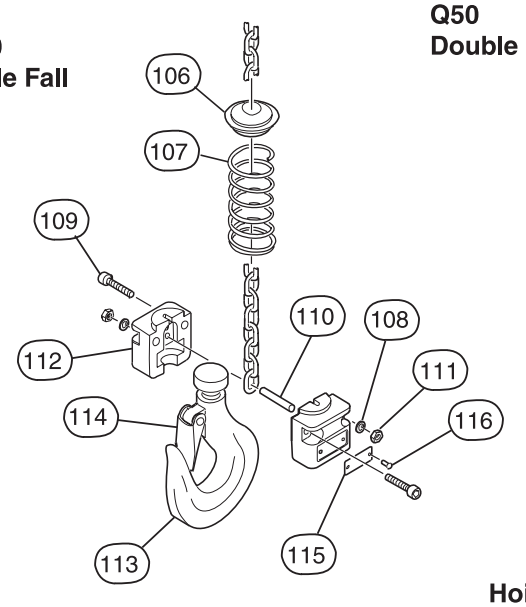
(Dwg. MHP1100)

ITEM NO.	DESCRIPTION OF PART			QTY. TOTAL	PART NUMBER				
					Q25	Q50	Q100	Q200	Q300/Q500
124	Clip			2	71307185				
125	Locknut			1	71277842		---		
126	Support Bracket			1	71307177		---		
127	Capscrew			1	71307235		---		
128	Shaft			1	71307268		71307243		
129	Cover			1	---		71307250		
130	Spring			1	---		04596144		
131	Chain Container Assembly (length of load chain ft/metre)	ft	metres						
		20	6	1	---	71269302	---		
		26	8		71269302	---			71282552
		33	10		---		71269369	71282552	---
		40	12		---	71269310	---		
		52	16		71269310	71269328	---		71282560
		66	20		71269328	71269336	71269377	71282560	---
		82	25		71269336	---			71269419
		98	30		---	71269344	---	71269419	---
		105	32		---				71269468
		121	37		---		71269385	---	
		125	38		71269344	---			
		131	40		---	71269351	---	71269468	71269476
		151	46		---		71269393	---	
		164	50		71269351	---		71269476	---
		197	60		---		71269401	---	

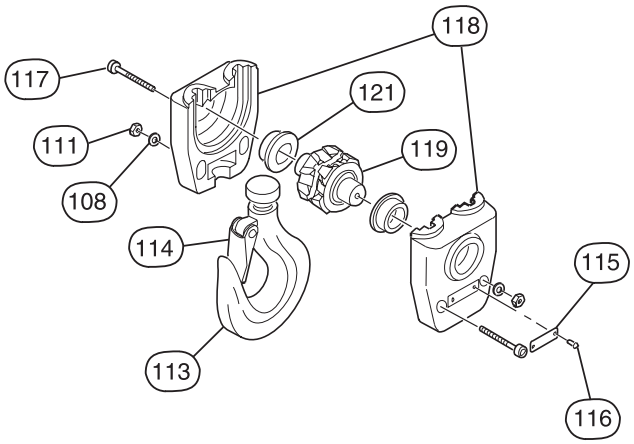
Capacities shown are for single chain fall hoists. For double (2) chain fall hoists, maximum height is half of chain container capacity.

BOTTOM HOOK ASSEMBLY PARTS DRAWING

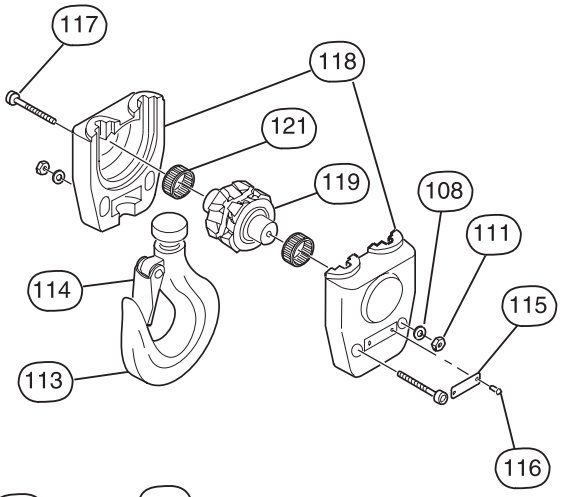
Hoist Models
Q25
Q50
Q100
Single Fall



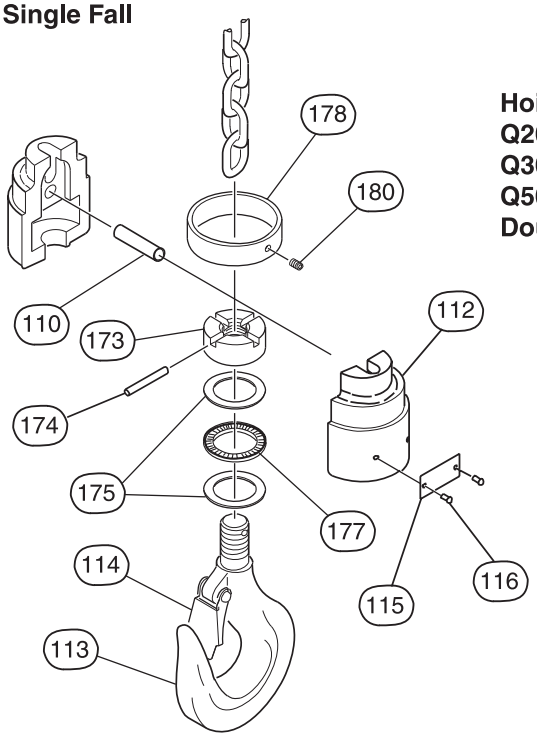
Hoist Models
Q25
Q50
Double Fall



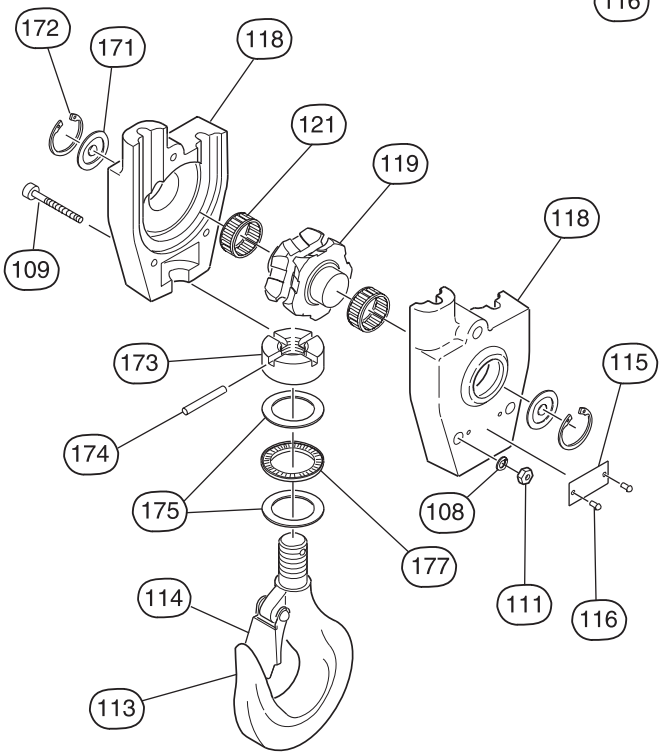
Hoist Models
Q100
Double Fall



Hoist Models
Q300
Single Fall



Hoist Models
Q200
Q300
Q500
Double Fall



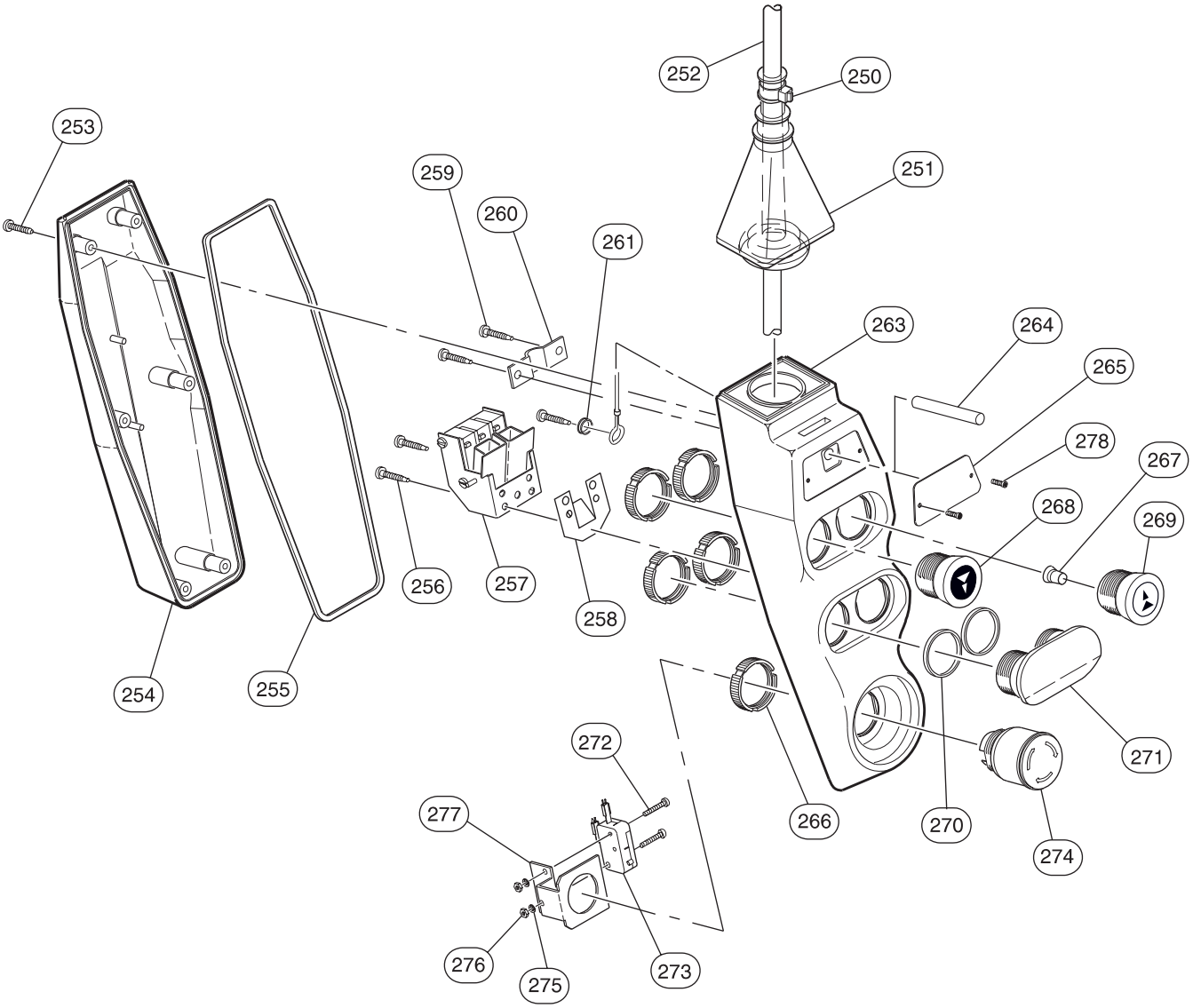
(Dwg. MHP1109)

BOTTOM HOOK ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER					
			Q25	Q50	Q100	Q200	Q300	Q500
•106	Spring Guide	1	71277636	71278436	---			
•107	Chain Spring	1	71277644		---			
108	Lockwasher	See ( )	71278717 (2)	71277685 (2)	71277883 (2)	71277883 (3)		
109	Capscrew	See ( )	71277925 (2)	71278279 (2)	71279897 (2)	71279715 (3)		
•110	Chain Pin	1	71278188	71278204	71279871	71280598	71310973	- - -
111	Nut	See ( )	71278063 (2)	71278261 (2)	71277693 (2)	71280531 (3)		
112	Bottom Block Assembly Single Fall (Incl's items 106 thru 111)	1	71272652	71272629	71272611	---		
	Bottom Block Assembly Single Fall (Incl's items 108 thru 112)		---			---		
	Bottom Block Assembly Single Fall (Incl's items 110, 178 and 180)		---				71272637	
113	Bottom Hook Assembly (Incl's item 114)	1	71272447	71272413	71272421	---		
	Bottom Hook Assembly (Incl's items 114, 173, 174, 175 and 177)		---			71272439		
•114	Hook Latch Kit	1	71275275		71275655			
115	Capacity Plate (125 kg)	1	71278535	---				
	Capacity Plate (250 kg)		71278550		---			
	Capacity Plate (500 kg)		71278592		---			
	Capacity Plate (1000 kg)		---	71298715	---			
	Capacity Plate (0.5 ton)		---		71279830	---		
	Capacity Plate (1 ton)		---		71279780	---		
	Capacity Plate (2 ton)	2	---		71279798	---	71279798	---
	Capacity Plate (3 ton)		---			71293773	----	
	Capacity Plate (4 ton)		---				71273781	---
	Capacity Plate (5 ton)		---					04660239
116	Rivet	2	71278501			04556536		
117	Capscrew	2	71278105	71278279	71279863	---		
118	Bottom Block Assembly Double Fall (Incl's items 108, 111, 117, 119 and 121)	1	71272751	71272744	71272736	---		
	Bottom Block Assembly Double Fall (Incl's items 108, 109, 111, 119, 121, 171 and 172)		---			71272728	71272769	
119	Idle Sheave	1	71278519	71278444	71279772	71280556	71310965	
•121	Bushing / Bearing	2	71278667	71278428	71279756	71280549		
171	Cover	2	---			Contact Factory		
172	Retainer Ring	2	---			71285043		
173	Nut	1	---			71280606		
174	Pin	1	---			71280630		
•175	Bearing Spacer	2	---			71280614		
•177	Bearing Cage	1	---			71280622		
178	Retaining Ring	1	---			71280572		
180	Setscrew	1	---			71280580		

• Recommended Spare

CONTROL PENDANT ASSEMBLY PARTS DRAWING



(Dwg. MHP0853)

ITEM NO.	DESCRIPTION OF CONTROL PENDANT ASSEMBLY	PENDANT LENGTH		PART NUMBER
		ft	metre	
246	Down/Up and Emergency Stop	11	3.4	71272983
		21	6.4	71272991
247	Down/Up and Left/Right with Emergency Stop	11	3.4	71273023
		21	6.4	71273031

Contact your nearest **Ingersoll-Rand** distributor or the factory for Pendant drop lengths not shown.

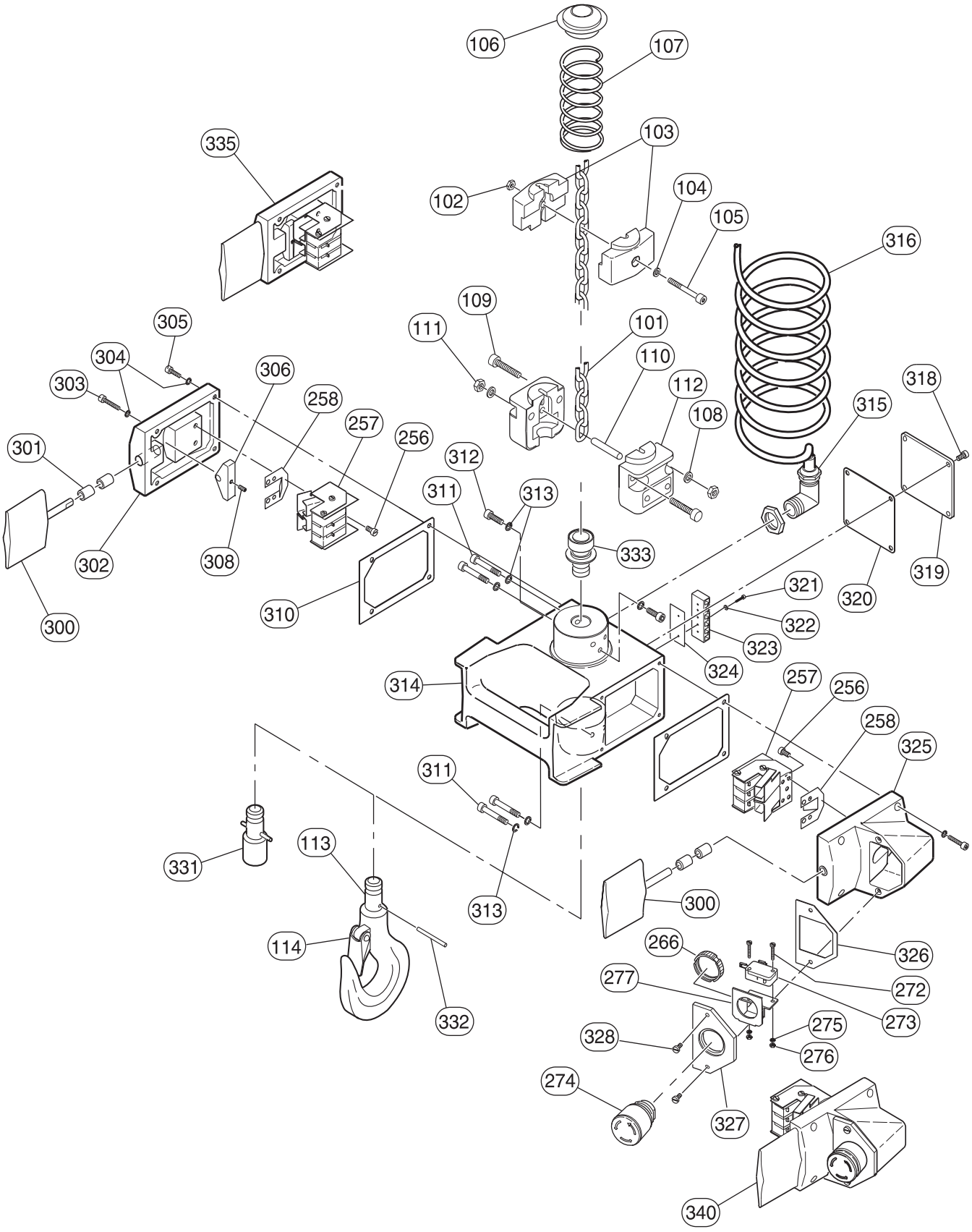
CONTROL PENDANT ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER
248	Direction Switch Assembly (Incl's items 256, 257, 258, 266, 267 and 268 or 269)	1	71312482
249	Emergency Stop Switch Assembly (Incl's items 266, 267, 272, 273, 274, 275, 276 and 277)	1	71312490
250	Wire Tie	1	54235
251	Pendant Cap	1	04556387
252	Control Cable (Hoist only)	1	71307086
	Control Cable (Hoist and Trolley)		71307094
253	Screw	6	71312268
254	Cover	1	Order Pendant Assy. Item 246 or 247
• 255	Gasket	1	71312284
256	Screw (Hoist only)	2	71312292
	Screw (Hoist and Trolley)	4	
257	Switch (Hoist only)	1	Order Item 248
	Switch (Hoist and Trolley)	2	
258	Spring Plate (Hoist only)	1	71312318
	Spring Plate (Hoist and Trolley)	2	
259	Screw	3	71312326
260	Clamp	1	71312334
261	Eyelet	1	71277651
263	Pendant Body	1	Order Pendant Assy. Item 246 or 247
264	Pin	1	71312359
265	Label Plate	1	71270342
266	Locking Ring	5	71312367
267	Plunger (Hoist only)	2	71312375
	Plunger (Hoist and Trolley)	4	
268	Direction Button (White Arrow)	1	71312383
269	Direction Button (Black Arrow)	1	71312391
• 270	* Gasket	2	71312409
271	* Plug	1	71312417
272	Screw	2	71312425
273	Switch	1	Order Item 249
274	Emergency Stop Button Assembly	1	Order Item 249
275	Lockwasher	2	71312458
276	Nut	2	71280663
277	Switch Bracket	1	Order Item 249
278	Screw	2	71312474

• Recommended Spare

* Required on Pendant without Trolley control.

HANDI-PENDANT ASSEMBLY PARTS DRAWING (OPTIONAL FEATURE)



(Dwg. MHP0928)

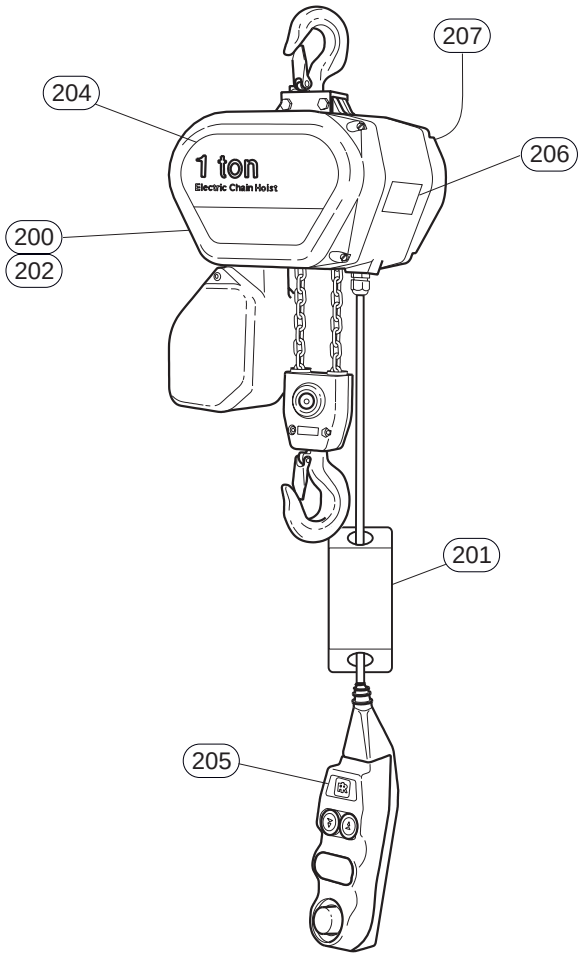
HANDI-PENDANT ASSEMBLY PARTS LIST (OPTIONAL FEATURE)

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER
101	Load Chain Model Q25	As Req'd	71268429
102	Nut	1	71277958
103	Chain Stopper Assembly Q25 (Incl's items 102, 104, and 105)	1	71273320
104	Lockwasher	1	71277628
105	Capscrew	1	71277776
106	Spring Guide	1	71277636
• 107	Chain Spring	1	71277644
108	Lockwasher	2	71278717
109	Capscrew	2	71277925
110	Chain Pin	1	71278188
111	Nut	2	71278063
112	Bottom Block Assembly (Incl's items 106 thru 111)	1	71272652
113	Bottom Hook Assembly (Incl's items 114 and 332	1	71272447
114	Hook Latch Kit	1	71275275
256	Capscrew	2/4	71312292
257	Switch	2	71312300
258	Spring Plate	2	71312318
266	Locking Ring	1	71312367
272	Capscrew	2	
273	Switch	1	71312433
274	Emergency Stop Button	1	71312441
275	Lockwasher	2	71312458
276	Nut	2	71280663
277	Switch Bracket	1	71312466
300	Control Lever	2	04611315
301	Bushing	4	04611349
302	Switch Cover	1	04611356
303	Capscrew	6	04611364
304	Lockwasher	8	04611372
305	Capscrew	2	04611380
306	Rocker Block	2	04611398
308	Setscrew	2	04611406
• 310	Gasket	2	04611414
311	Capscrew	4	04611422
312	Capscrew	2	04611430
313	Lockwasher	6	04611448
314	Pendant Body	1	Order Complete Pendant
315	Connector	2	04611463
316	Control Cable	As Req'd	04611471
318	Screw	4	04611489
319	Cover	1	04611497
• 320	Gasket	1	04611505
321	Capscrew	2	04611513
322	Flatwasher	2	04611521
323	Terminal Block	1	04611539
324	Insulator Pad	1	04611547
325	Emergency Stop Cover	1	04611554
• 326	Gasket	1	04611562
327	Cover	1	04611570
328	Screw	2	04611588
331	Connector	1	04611596
332	Pin	1	04611604
333	Pendant Connector	1	04611612

• Recommended Spare

Note: Handi-Pendant assemblies are only available for use on Q25 Hoists.

LABEL / TAG DRAWING AND PARTS LIST



(Dwg. MHP1082)

ITEM NO.	DESCRIPTION OF PART	QTY. TOTAL	PART NUMBER					
			Q25	Q50	Q100	Q200	Q300	Q500
200	Warning Label	1	71125751					
201	Warning Tag	1	04612776					
202	Warning Label	1	04306445					
204	**Ingersoll-Rand** Capacity Label 1/8 ton	1	71270284	---				
	Ingersoll-Rand Capacity Label 1/4 ton		71270243		---			
	Ingersoll-Rand Capacity Label 1/2 ton		71270250			---		
	Ingersoll-Rand Capacity Label 1 ton		---	71270300	71270268	---		
	Ingersoll-Rand Capacity Label 2 ton		---		71270318	---	71270276	---
	Ingersoll-Rand Capacity Label 3 ton		---			71270326	---	
	Ingersoll-Rand Capacity Label 4 ton		---				71270334	---
	Ingersoll-Rand Capacity Label 5 ton		---					04558391
205	**Ingersoll-Rand** Logo	1	71270342					
206	Model Number Label	1	04612230					
207	**Ingersoll-Rand** Label	1	71270201		71270227			

SPECIAL TOOLS AND ACCESSORIES

DESCRIPTION	PART NUMBER					
	Q25	Q50	Q100	Q200	Q300	Q500
Chain Lubricant	LUBRI-LINK-GREEN					
Touch-Up Paint	FAP-237Y					
Motor Stator (34) Puller	04612008		04612016			
Intermediate Pinion Shaft (77) Puller	04612057		04612065	---		
Slip Clutch Setting Tool (Load Chain Stop)	04612073		04612081	04612099		

Copies of Special Tool drawings can be obtained by contacting your nearest **Ingersoll-Rand** Material Handling distributor.

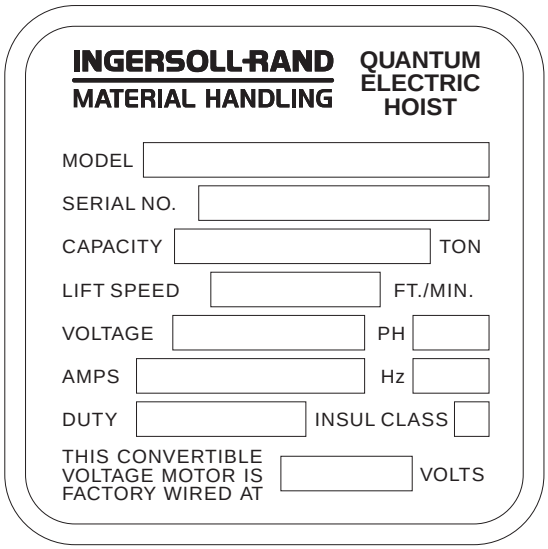
PARTS ORDERING INFORMATION

Quantum electric chain hoists are designed and constructed to provide long, trouble-free service. In time it may become necessary to order and install new parts to replace those that have been subjected to wear.

The use of other than **Ingersoll-Rand** Material Handling replacement parts may result in decreased hoist performance, and may invalidate the warranty. For prompt service and genuine **Ingersoll-Rand** Material Handling parts, provide your nearest Distributor with the following:

1. Complete hoist model number and serial number as they appear on the hoist labels.
2. Part number and part description as shown in the parts section.
3. Quantity required.

The model and serial number labels are located on the hoist housing.



For your convenience and future reference it is recommended that the following information be recorded.

Hoist Model Number:_____

Hoist Serial Number: _____

Date Purchased: _____

Return Goods Policy

If it becomes necessary to return the complete hoist or certain parts to the factory, contact the Distributor from whom you purchased the hoist, or the nearest **Ingersoll-Rand** Distributor in your area.

Ingersoll-Rand will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased.

NOTICE

• Continuing improvement and advancement of design may cause changes to this hoist which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.

Disposal

When the life of the hoist has expired, it is recommended that the hoist be disassembled, degreased and parts separated as to materials so that they may be recycled.

For additional information contact:

Ingersoll-Rand Distribution Center
P O Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

or

Europe, Middle East and Africa
Ingersoll-RandMaterial Handling
Douai Operations
111, avenue Roger Salengro
59450 Sin Le Noble, France
Phone: (33) 3-27-93-08-08
Fax: (33) 3-27-93-08-00

Additional information on the QUANTUM Electric Chain Hoist and its options is available in the following documents:

QUANTUM Electric Trolley Parts, Operation and Maintenance Manual Form Number MHD56108
PT and RT Series Trolley Parts, Operation and Maintenance Manual Form Number MHD56102
QUANTUM International Electric Hoist Parts, Operation and Maintenance Manual Form Number MHD56124
QUANTUM International Electric Trolley Parts, Operation and Maintenance Manual Form Number MHD56125

SERVICE NOTES

SERVICE NOTES

LIMITED WARRANTY

Ingersoll-Rand Company (**I-R**) warrants to the original user its Hoists and Winches (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase. **I-R** will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which **I-R** has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine **I-R** parts.

I-R makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above. I-R's maximum liability is limited to the purchase price of the Product and in no event shall I-R be liable for any consequential, indirect, incidental, or special damages of any nature rising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts so that the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.

This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while enroute is not due to any action or conduct of the manufacturer.

VISIBLE LOSS OR DAMAGE
If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

CONCEALED LOSS OR DAMAGE
When a shipment has been delivered to you in apparent good condition, but upon opening the crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediately.

DAMAGE CLAIMS
You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the **Ingersoll-Rand** invoice, nor should payment of **Ingersoll-Rand** invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery.

You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.

United States Office Locations

For Order Entry, Order Status

Ingersoll-Rand Distribution Center
P.O. Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

For Technical Support

Ingersoll-Rand
1725 U.S. Highway #1-N
Southern Pines, NC 28387
Phone: (910) 692-8700
Fax: (910) 692-7822

Web Site
www.ingersoll-rand.com

Regional Sales Offices

Chicago, IL
888 Industrial Drive
Elmhurt, IL 60126
Phone: (630) 530-3800
Fax: (630) 530-3891

Detroit, MI
23192 Commerce Drive
Farmington Hills, MI 48335
Phone: (248) 476-6677
Fax: (248) 476-6670

Houston, TX
450 Gears Road
Suite 210
Houston, TX 77067-4516
Phone: (281) 872-6800
Fax: (281) 872-6807

Los Angeles, CA
11909 E. Telegraph Road
Santa Fe Springs, CA 90670-0525
Phone: (562) 948-4189
Fax: (562) 948-1828

Philadelphia, PA
P.O. Box 425
900 E. 8th Ave., Suite 103
King of Prussia, PA 19406
Phone: (610) 337-5930
Fax: (610) 337-5912

International Office Locations

Offices and distributors in principal cities throughout the world. Contact the nearest **Ingersoll-Rand** office for the name and address of the distributor in your country or write/fax to:

Ingersoll-Rand Distribution Center
P.O. Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

Canada
National Sales Office
Regional Warehouse
Toronto, Ontario
51 Worcester Road
Rexdale, Ontario
M9W 4K2
Phone: (416) 213-4500
Fax: (416) 213-4510
Order Desk
Fax: (416) 213-4506

Regional Sales Offices

Edmonton, Alberta
1430 Weber Center
5555 Calgary Trail N.W.
Edmonton, Alberta
T6H 2P9
Phone: (403) 438-5039
Fax: (403) 437-3145

Montreal, Quebec
3501 St. Charles Blvd.
Kirkland, Quebec
H9H 4S3
Phone: (514) 695-9040
Fax: (514) 695-0963

British Columbia
1200 Cliveden Avenue
Delta, B.C.
V3M 6G4
Phone: (604) 523-0803
Fax: (604) 523-0801

Latin America Operations
Ingersoll-Rand
Production Equipment Group
730 N.W. 107 Avenue
Suite 300, Miami, FL
33172-3107
Phone: (305) 559-0500
Fax: (305) 222-0864

Europe, Middle East and Africa
Ingersoll-RandMaterial Handling
Douai Operations
111, avenue Roger Salengro
59450 Sin Le Noble, France
Phone: (33) 3-27-93-08-08
Fax: (33) 3-27-93-08-00

Asia Pacific Operations
Ingersoll-Rand
Suite 1201-3 12/F
Central Plaza
18 Harbour Road
Wanchai, Hong Kong
Phone: (852) 9794 1673
Fax (852) 9794 7895

Russia
Ingersoll-Rand
Kuznetsky Most 21/5
Entrance 3
Moscow, Russia 103895
Phone: (7) 501 923 9134
Fax: (7) 501 924 4625

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